

United States Department of Energy
Laboratory, Plant or Site Directed Research and Development Report
Project List -- Fiscal Year 2004

ANL - Argonne National Lab

Project ID	Project Name	FY Total
P/ANL2002-001	Laser-Based Ignition System for Natural Gas Reciprocating Engines	\$166600
P/ANL2002-017	Magnetically Stabilized Metal Clusters	\$25300
P/ANL2002-018	New Photonic Materials Based on the Self-Assembly of Nano-Structured Metallo-Organic Building Blocks	\$137900
P/ANL2002-099	Advanced Biological Sensors Based on Fluorescent Conjugated Polymers	\$90000
P/ANL2002-147	A Calorimeter for the Linear Collider Detector	\$75300
P/ANL2002-149	Derivatization of Ultrananocrystalline Diamond for Bioassays	\$80600
P/ANL2002-152	Petascale Experimental Research	\$1305100
P/ANL2002-153	Prokaryotic Simulation System: Computational Biology and Bioinformatics -- the Science Drivers for PXRf	\$1258200
P/ANL2002-154	Computational Science for Self-Assembly	\$102900
P/ANL2002-161	Environmental Decision Making Technology R&D	\$110000
P/ANL2002-163	Capabilities Development for the Analysis of Complex Adaptive Systems	\$224300
P/ANL2002-185	Bio-Nano Composite Structures	\$200200
P/ANL2002-186	Nanophotonics	\$200800
P/ANL2002-187	Quantum Materials	\$199100
P/ANL2002-188	Adaptive Nanoscale Self-Assembly	\$271200
P/ANL2002-192	Development of Nanofabrication Techniques using Advanced Lithography	\$126000
P/ANL2002-194	Surface Spin Polarization for Spintronics	\$77300
P/ANL2002-195	Catalytic Destruction of Chemical Threats in Human Occupied Spaces	\$50000
P/ANL2002-196	Hybrid and Patterned Nanomagnetic Systems	\$298800
P/ANL2002-199	Nanoscale Multiferroics for Coupled Magnetic and Ferroelectric Functionality	\$76400
P/ANL2002-200	Nanoscience and Biomineralization	\$51200
P/ANL2002-201	Synthesis and Physical Properties of Functionalized Diblock Copolymers and Magnetic Nanocrystal Arrays (new title)	\$77100
P/ANL2002-202	UHV STM for Self-Assembled Magnetic Nanowires	\$49000
P/ANL2002-203	Fabrication of Nanowires with Anodized Aluminum Oxide	\$50100
P/ANL2002-204	Imaging of Nanoscale Vortex States in Superconductors by Scanning Tunneling Spectroscopy	\$49500
P/ANL2002-205	Surface Functionalization of Ultrananocrystalline Diamond Thin Films	\$75700
P/ANL2002-206	Counter Terrorism Application of Agent Based Simulation	\$79500

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P/ANL2002-211	Interacting Laterally Patterned Magnetic Structures	\$199400
P/ANL2002-212	Thermal Transport in Nanostructures and Nanocomposites	\$25600
P/ANL2002-213	Self-Assembly and Self-Organization of Nanostructures by Multiscale Materials Simulation	\$75300
P/ANL2003-010	Preparation and Crystallization of Membrane Proteins, MerC and MerT Involved in Bacterial Mercuric Ion Detoxification	\$84000
P/ANL2003-040	Vortex Cellular Automata: Computing with Superconducting Vortices in Nanoscale Devices	\$86400
P/ANL2003-064	Bio/Inorganic Hybrid Arrays for Photovoltaic Cells and Biological Sensors	\$139700
P/ANL2003-073	The Control of Shape, Size, and Reactivity of Metal Oxide Nanoparticles	\$126500
P/ANL2003-080	Laser Trapping and Cooling of Radium-225	\$84500
P/ANL2003-087	Development of Surface Treatments for Ultra High Gradient Accelerator Cavities	\$134700
P/ANL2003-103	Fluxoid Manipulation by Josephson Vortices: New Opportunity for Vortex Logic	\$86500
P/ANL2003-105	Ultrafast Spectroscopy, Combining Lasers and X-Rays	\$138900
P/ANL2003-106	Metabolome Analysis from Aptamer Biochips	\$146200
P/ANL2003-117	Quantized Magneto-Catalysis of Electron Transfer Reactions	\$90200
P/ANL2003-119	Tunable Terahertz Sources	\$146700
P/ANL2003-124	Development of Polysiloxane-Based Solid Electrolytes for Lithium Batteries	\$135200
P/ANL2003-128	Novel Thin-Film Diamond Electronics	\$96900
P/ANL2003-146	Synthesis of High Temperature Superconductor Wires using Novel Atomic Layer Deposition Synthesis	\$147600
P/ANL2003-151	Time-Resolved X-Tomography of Highly Transient Fuel Sprays	\$134300
P/ANL2003-158	High-Sensitivity Infrared Imagers for Environmental and Energy Security/Safety Monitoring	\$129600
P/ANL2003-172	Mass Spectral Detection of Biomolecular Interactions on a Functional Proteomic Biochip	\$192800
P/ANL2003-173	Functional Genomics of Endothelial Cell Tube Formation	\$273300
P/ANL2003-176	Designer Antibodies and Interaction Mapping	\$715700
P/ANL2003-177	Nano-Architecture from the Bio-System: Fabrication, Assembly and Function	\$184200
P/ANL2003-185	High-Power Beam Dump for a Large Acceptance RIA Fragment Separator	\$525900

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P/ANL2003-188	Development of a Model 3-Spoke Superconducting Resonator for RIA	\$720100
P/ANL2003-204	Lightweight and Robust Hydrogen Storage Materials for Automotive Fuel Cells	\$160300
P/ANL2003-216	Linear Collider R&D: High Gradient Accelerating Structures	\$283500
P/ANL2003-217	High-Brightness Beams Electron Sources	\$143200
P/ANL2003-218	Damping Rings for Linear Colliders	\$26800
P/ANL2003-219	Investigations of the Effect of the Biogeochemical Cycling of Iron on the Fate and Transport of Heavy Metal, Radionuclide, and Organic Contaminants	\$420800
P/ANL2003-224	Separative Bioreactor Model: Using pH-Controlled Electrodeionization	\$87300
P/ANL2003-230	Demonstrate the Two-Charge State Injector Concept for the RIA Driver Linac	\$300500
P/ANL2003-237	Study of Beam Halo Formation in Longitudinal Phase Space in the RIA Driver Linac	\$206500
P/ANL2003-242	Transmission Multilayer Optics for Sub-Ten-Nanometer Focusing of Hard X-Rays	\$175600
P/ANL2003-256	Vacuum-Ultraviolet Free-Electron Laser Studies	\$250800
P/ANL2003-288	Thin-Film Liquid Lithium Stripper for the RIA Driver Linac	\$700800
P/ANL2003-329	Hydrogen Production from Low Temperature Thermochemical Cycles Compatible with Heat from a Na-Cooled Nuclear Reactor	\$230100
P/ANL2003-331	Process and Equipment Integration for a Recycling Capability	\$225500
P/ANL2003-332	Integration of Automated Systems and Robotics for a Recycling Operation	\$69800
P/ANL2003-335	Experimental Testing of Pyroprocessing Structural Materials	\$206200
P/ANL2003-336	Multidisciplinary Theory	\$297600
P/ANL2003-337	The Use of Synchrotron Radiation Sources for Homeland Security	\$99600
P/ANL2003-338	Modeling Near-Field Atmospheric Dispersion and the Potential Health and Economic Impacts from Terrorism Scenarios Involving "Dirty Bombs" or Similar Devices	\$134400
P/ANL2003-340	Core-Shell Nanocrystal Spring Magnets	\$80100
P/ANL2003-341	Simulation and Modeling of Reactivity in Nanoporous Materials	\$73500
P/ANL2004-002	Development of Germanium Double Sided Strip Detectors for Nuclear Imaging Applications	\$122900
P/ANL2004-009	Ultrafast Laser/X-Ray Interactions	\$75000
P/ANL2004-014	Development of Cross-Polarization Confocal Microscopy for Measurement of Subsurface Microstructure	\$106100

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Project ID	Project Name	FY Total
P/ANL2004-018	Fundamental and Applied Studies of Novel Intermetallic Thin Films for Lithium Ion Battery Anodes	\$150200
P/ANL2004-019	Multiphase CFD Analysis of Vascular Lesion Formation	\$146700
P/ANL2004-026	Science and Technology of a New TiAlOx Alloy Oxide and TiO2/Al2O3 Superlattice Oxide Layers and Their Application to a New Generation of Integrated Circuit Gate Dielectric	\$94700
P/ANL2004-036	Direct Conversion of Sequestered CO2 to Feedstocks for Large Commodity Chemicals	\$52000
P/ANL2004-038	Time-Resolved Studies of Magnetization Dynamics in Nanostructured Materials	\$109700
P/ANL2004-041	Site-Specific Magnetism in Crystals	\$110100
P/ANL2004-044	Palladium/Semiconductor Nanohybrids as Hydrogen Sensors for Fuel Cell Applications	\$149400
P/ANL2004-046	Superconducting Magnetic Control System for Manipulation of Magnetic Particles and Nano-Particles for Medical Applications	\$149000
P/ANL2004-057	Novel Integrated (On-Chip) Magnetic Field Sensors	\$69600
P/ANL2004-063	Ferromagnetic Micro-Disks with Superior Properties for Biomedical Applications	\$119400
P/ANL2004-069	Design and Fabrication of Two Novel High-Gradient Accelerating Structures: The Metallic Photonic Bandgap Accelerator and the SiC Surface Wave Accelerator	\$95000
P/ANL2004-086	A New Low Temperature Thermochemical Hydrogen Production Cycle Based on Heavy Element Halides	\$105700
P/ANL2004-095	Nanoporous Separation Membranes	\$172700
P/ANL2004-103	Direct Regeneration of Cofactors with an Electron/Ion Mixed Conductive Matrix	\$128500
P/ANL2004-115	Photosynthetic Reaction Center as a Novel Quantum Electronic Circuit Element	\$148500
P/ANL2004-126	Novel Hydrogen Storage Media through Nano-Structured Polymer and Carbon Layer Materials	\$135100
P/ANL2004-127	Hydrogen Storage through Organic Hydride	\$118000
P/ANL2004-133	Ultra-High-Sensitive Miniature Calorimeter for Studies of Confinement Effects of Bio-Organic Structures	\$129800
P/ANL2004-141	Environment for a Nanoscale Materials Virtual Fab Lab	\$138300
P/ANL2004-142	Simulations of Spin Wave Excitations in Magnetic Nanoparticles	\$64800

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Project ID	Project Name	FY Total
P/ANL2004-143	Hydrogen Storage using Novel Nanoporous Materials Coated via Atomic Layer Deposition	\$64900
P/ANL2004-144	Near-Field Optical Investigations of Nanoscale Photochemistry and Photophysics	\$176300
P/ANL2004-145	Ultrasensitive Hydrogen Sensors	\$138200
P/ANL2004-147	Large Scale Manufacturing of Hydrogen in Gas-Fluidized Bed Reactors with Nanostructured Support Catalysts and Modulated Air Flow	\$80000
P/ANL2004-148	Discovery of Protein Space	\$80100
P/ANL2004-149	Nano IR Spectroscopy and Imaging	\$103600
P/ANL2004-150	Aerosol Characterization and Modeling: Morphology and Surface Reactions	\$74200
P/ANL2004-152	Fundamental Aspects of Hydrogen Storage in Novel Nanocomposite Materials	\$93900
P/ANL2004-154	Nanoscale Confinement of Highly Spin-Polarized Oxides	\$49800
P/ANL2004-156	Functional Metalloproteomics	\$149900
P/ANL2004-157	High-Throughput Analysis of Low Abundance Protein Constituents in Complex Biological Mixtures	\$566100
P/ANL2004-158	Development of Peptide Biochips for a Whole-Proteome Analysis of Protein Interactions with Peptide Recognition Modules	\$243900
P/ANL2004-159	Molecular Recognition: Protein-Small Molecule Interactions	\$79500
P/ANL2004-160	Characterizing and Unveiling the Mechanism of Protein-Ligand Interactions	\$199200
P/ANL2004-161	Evolution of the Hydrogen Infrastructure as a Complex Adaptive System	\$144900
P/ANL2004-162	The Biogeochemical Cycle of Nitrogen: Effects on Climate Change	\$70600
P/ANL2004-164	Challenge and Opportunity in Megaproteins	\$194600
P/ANL2004-165	Core Physics Conceptualization of an Inert Matrix Fuel Assembly	\$90100
P/ANL2004-166	Inert Metal Matrix LWR Dispersion Fuel Fabrication	\$196600
P/ANL2004-167	Evaluation of Fuel-Cladding Interaction in a Lined, ODS-Clad, SFR Fuel for Hydrogen Production Applications	\$68700
P/ANL2004-169	Compact Heat Exchanger Studies for Supercritical CO ₂ Power Conversion System	\$175400
P/ANL2004-173	Modeling Nuclear Energy Market Penetration in the U.S. Energy Sector	\$120800
P/ANL2004-174	Life Cycle Analysis for the DANESS System Dynamics Code	\$89900
P/ANL2004-175	Economic Impacts of a Transmutation Enterprise	\$125600
P/ANL2004-177	Recovering Actinides from UO ₂ -Carbide Fuels	\$49100

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Project ID	Project Name	FY Total
P/ANL2004-178	Incorporating Advanced Methods and Instrumentation into an Analytical Chemistry Laboratory to Support Advanced Fuel Cycle Needs	\$45800
P/ANL2004-179	ICP-OES and ICP-MS Methods for Actinide Accountancy Measurements and Process Control in Spent Fuel Processing	\$54900
P/ANL2004-180	AMUSE Development, Beyond Solvent Extraction and Into Hybrid Processing	\$175900
P/ANL2004-181	Evaluation and Development of a Supercritical Carbon Dioxide Based Dry Processing Technology and Related Closed Fuel Cycle Applications	\$50000
P/ANL2004-182	High Strength and Heat Resistant Chromium Steels - Promising Structural Materials for Sodium-Cooled Fast-Reactor Heat Exchangers	\$83000
P/ANL2004-185	Investigation of Passive Safety Performance of the Very High Temperature Reactor (VHTR) in Hydrogen Production Applications	\$100000
P/ANL2004-186	Design of a Helium Loop with Controlled Impurity Control for Research on Materials with Application in VHTR	\$29900
P/ANL2004-187	Passive Decay Heat Removal in the Very High Temperature Reactor	\$100000
P/ANL2004-188	Development of Advanced Computational Procedure for VHTR Physics Analyses	\$200000
P/ANL2004-191	Multidimensional Flow and Heat Transport Natural Convection Test Capability	\$100000
P/ANL2004-194	Hydrogen and Oxygen Production from Low Temperature Hybrid Cycles	\$142800
P/ANL2004-195	Single Step Hydrogen Production from Water using Catalytic Dense Mixed-Conducting Membranes	\$77100
P/ANL2004-198	The Electrochemical Storage of Hydrogen in a Zintl Matrix	\$76500
P/ANL2004-201	Microfluidic Study of Nanofluids	\$76600
P/ANL2004-202	Integrating Sensor Networks and Radiation Detectors to Protect Urban Areas from Radiological Terrorism	\$179800
P/ANL2004-212	Novel Superhard Coatings for Wear Reduction and Energy Saving Applications in Diesel Engines	\$114300
P/ANL2004-213	Pressure Rate Controlled Compression Ignition Engine	\$159100
P/ANL2004-214	Homogeneous Charge Compression Ignition (HCCI) Engine Research: An Advanced Concept for IC Engines	\$91600
P/ANL2004-215	Investigation into Nano-Particulate Production from Homogeneous Charge Compression Ignition (HCCI) Combustion	\$154800
P/ANL2004-216	Optimization of Electromagnetic Pumps for Liquid Lithium Applications	\$100000
P/ANL2004-221	T Lymphocyte Differentiation of Human Blood Progenitor Cells	\$276700

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Project ID	Project Name	FY Total
P/ANL2004-222	RF Capture Studies Using a Second Harmonic System on the IPNS Rapid Cycling Synchrotron (RCS)	\$61200
P/ANL2004-224	Improvement of High-Voltage Breakdown Characteristics in Linacs by Atomic-Scale Surface Smoothing Techniques	\$63000
P/ANL2004-225	EPICS on Emerging Computer Platforms	\$34700
P/ANL2004-226	Development of Ultrafast Laser Techniques for Advanced Accelerator Research	\$129000
P/ANL2004-227	Advanced Heavy-Ion Beam Dynamics	\$90200
P/ANL2004-228	Next-Generation Light-Source Storage Ring Design and Simulation	\$45000
P/ANL2004-229	Improvement of FNAL Run II Performance: Booster Beam Dynamics	\$39200
P/ANL2004-231	Improvement of FNAL Run II Performance: Tevatron Optics Modeling	\$29000
P/ANL2004-232	Improvement of FNAL Run II Performance: Optical Transition Radiation (OTR) Imaging for Protons and Antiprotons	\$18100
P/ANL2004-233	Improvement of FNAL Run II Performance: Electron Cooling	\$81200
P/ANL2004-234	RF Superconductivity for Future Accelerators	\$232200
P/ANL2004-236	SANS with Polarized Neutrons as a Tool for Studying Nanomagnetism in Nanostructured Materials	\$49000
P/ANL2004-238	Quantum Computation with Electron Spins: Qubit Networks of Endohedral N in C60	\$79700
P/ANL2004-239	Evaluation of Fast Flux Test Facility	\$162600
P/ANL2004-240	Proteomic and Phage-Display Analysis of Mitochondrial Compartmental Oxidant Biosensors for the Study and Reversal of Sudden Death Events	\$96000
P/ANL2004-241	A New Approach to Recycling Spent Nuclear Fuel: Hybrid Solvent Extraction-Electrorefining	\$181800
P/ANL2004-242	Laser Surface Texturing for Friction Reduction	\$218400
P/ANL2004-243	Innovations for Small Modular Fast Reactor	\$256300
Total # of Projects for ANL:	159	Total Cost for ANL: \$24873700

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BNL - Brookhaven National Lab

Project ID	Project Name	FY Total
02-002	Crystallization and X-ray Analysis of Membrane Proteins	\$410554
02-008	Creating a MicroMRI Facility for Research and Development	\$178948
02-009	Targeting Tin-117m to Estrogen Receptors for Breast Cancer Therapy	\$49009
02-022	Electrical Systems Reliability	\$103512
02-045	Combined Use of Radiotracers and Positron Emission Imaging in Understanding the Integrated Response of Plants to Environmental Stress	\$149232
02-070	Theory of Electronic Transport in Nanostructures and Low-Dimensional Systems	\$148483
02-071	Pressure in Nanopores	\$57423
02-084a	Genomic Selex to study Protein DNA/RNA Interactions in Ralstonia metallidurans CH34 Regulating Heavy Metal Homeostasis and Resistance	\$161662
02-084b	Lead Resistance in Ralstonia metallidurans CH34	\$169708
02-086	Ultrafast X-Ray Science	\$104578
02-088	X-Ray Photon Correlation Spectroscopy Studies of Nanostructured Block Copolymers	\$104775
03-004	High-Brightness, High-Power Electron Beams	\$192464
03-006	Feasibility Study of Optical Stochastic Cooling with a CO2 Laser	\$121834
03-013	Proposal for Niobium/Tin Superconducting Magnet	\$156269
03-014	Technology Development for Linear Collider Final Focus Quadrupoles with Small-Aperture High-Gradient Superconducting Coils	\$129829
03-026	Developing a New, Unified Systems Theory on Size Distributions of Atmospheric Particles	\$45447
03-027	Measurement of HO2 Radicals by ChemiLuminescence Analysis of Atmospheric Radicals (CLAAR)	\$99045
03-030	Chemistry of the Rhizosphere	\$101573
03-039	Integrated Analysis of Carbon and Nitrogen Metabolism in Plants and Subsequent Analysis of Photosynthetic Acclimation to Growth in Elevated pCO2	\$67283
03-050	Evaluation of High-Energy Radiation Effects in Materials	\$105354
03-056	Structural Properties of Methane Hydrates	\$103647
03-061	Dynamics of Wind Turbine-Tower-Foundation Systems	\$145957
03-064	Investigation of Neutron and Gamma Probes to Detect Explosives in Sealed Containers	\$112370

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BNL - Brookhaven National Lab

Project ID	Project Name	FY Total
03-065	Ultrasound and Infrared Imaging to Detect Degradation of Electric Cable Insulation	\$74604
03-072	Application of Compton-Suppression Gamma-Ray Spectrometry to Counterterrorism Problems	\$134174
03-077	Real-Time Consequence Assessment System for Atmospheric Terrorist Events in the Northeast Urban Corridor	\$72951
03-081	Application of Thin Film-Like Dosimeters for Port Security and Anti-Terrorism	\$100696
03-083	Novel Xenon Detector Concepts for Homeland Defense	\$103976
03-086	Defining New Pathways for Disarming Anthrax Toxin	\$99543
03-094	Structural Studies on the Integral Membrane Protein AlkB	\$96692
03-098	Roles of Dopamine Receptor Agonists in Brain Metastasis of Breast Cancer	\$99091
03-099	The microPET Study of Gene Expression in Rodents	\$94700
03-100	Investigation of the "Early Response" in Functional MRI	\$123500
03-101	PET Imaging of Violent Behavior	\$98978
03-103	PET Study of Acetaldehyde Distribution and Metabolism to Better Understand Alcohol Related Diseases	\$98889
03-104	Hydrogen Atom Transfer from Carbon to Metal - Relevance of a Novel Reaction to Catalyzed Hydrocarbon Conversions	\$56480
03-105	Radioprotection in D. Radiodurans, a Radiation Resistant Bacterium	\$74668
03-107	New Development of Norepinephrine Transporter Radioligands for PET Studies of Substance Abuse, Depression and ADHD	\$111095
03-108	Experiments in the Short-Wavelength Regime Pertinent to the DUV-FEL Concept	\$131367
03-115	Imaging Tandem Mass Spectrometry for High-Throughput "Fingerprint" Detection of Complex Molecules in Mixtures	\$109593
03-118	Condition: Green Chemistry Radiolytic Studies of Ionic Liquids in Service of Security and the Environment	\$79517
03-119	Exploring the Use of Powder Diffraction for Proteins	\$79445
03-121	Element-Resolved Dynamics of Nanoscale Ferromagnets	\$79558
03-122	Membrane Biophysics Using Model Membranes	\$79316
03-127	High Pressure in Strongly Correlated Materials - An Optical Investigation	\$66865
03-129	Polyoxometalate Giant Molecules: Novel Synthetic Methods, Characterizations and Potential Applications	\$95532

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Project ID	Project Name	FY Total
03-135	Exploratory Sol-Gel Synthesis	\$81047
03-137	In Situ Soft X-Ray Absorption Spectroscopy Studies of Cathode Materials for Thin Film Lithium-Ion Batteries	\$46337
03-138	Functional Bulk Mn-Based Nanocomposites	\$76906
03-144	Nanostructured Transition Metal Oxides	\$76347
03-151	Radio Wave Detection of Ultra High Energy Cosmic Rays	\$123923
03-161	Generation of Coherent, Femtosecond, High Brightness VUV and X-Ray Beams Using High Order Harmonic Conversion	\$139719
03-162	New Synthesis Techniques to Control Atomic Defects in Advanced Intermetallic Compounds	\$90577
04-011	Femtosecond Photoinitiated Nanoparticle Surface Chemistry	\$79532
04-013	Chirped Pulse Amplification at the DUV-FEL	\$78404
04-025	Overcoming Coherent Instabilities at Medium-Energy Storage Rings	\$91415
04-033	Layered Cobaltates with High Thermoelectric Power	\$61780
04-038	Complex Thin Films and Nanomaterial Properties	\$79
04-041	Physics of Quark Gluon Plasma (QGP)	\$69272
04-043	Very Long Baseline Neutrino Oscillation Experiment	\$71099
04-046	Advanced ³ He Detectors for the Spallation Neutron Source	\$72953
04-055	Genetic NanoTags	\$12933
04-060	The Use of Singular Point Genome Sequence Tags to Analyze Community Composition and Metabolic Potential	\$121236
04-061	3-D Electronic Wave Functions from EM Images	\$98945
04-062	Functional MRI Studies in Rats using Implanted Brain Electrodes	\$78466
04-063	Optimizing Functional Neuroimaging Techniques to Study Brain Function in Health and Disease States	\$100684
04-066	Technological Development of a Fluorescence Probe for Optical Detection of Brain Functional Activation in vivo	\$27032
04-069	Nuclear Control Room Unfiltered Air In-Leakage by Atmospheric Tracer Depletion (ATD)	\$59463
04-073	Perfluorocarbon Tracer Sampling, Tagging and Monitoring Techniques for use at the Urban Atmospheric Observatory	\$65530
04-079	Development of an Aerosol Mobility Size Spectrometer and an Aerosol Hygroscopicity Spectrometer	\$65589

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Project ID	Project Name	FY Total
04-086	Exploration of Thermal Diffusion Processes in CdZnTe for Improved Nuclear Radiation Detectors	\$86077
04-088	An Integrated Approach of High Power Target concept Validation for Accelerator-Driven Systems	\$82747
04-104	Hydrogen Storage Using Complex Metal Hydrides for Fuel Cell Vehicles	\$70265
Total # of Projects for BNL:	73	Total Cost for BNL: \$7208543

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INEEL - Idaho National Engineering and Environmental Lab

Project ID	Project Name	FY Total
AC101	Parallel Computing with Cluster Technology	\$155394
AC104	Development and Validation of Advanced Simulation and Collaboration Capability	\$73349
AE100	An Innovative Gas-Cooled Fast Reactor	\$411436
AE101	Advanced Fission Product Detection Systems for the Next Generation Nuclear Reactors	\$230281
AE102	Development of Advanced Aqueous Processing to Support the Nuclear Fuel Cycle	\$174590
AE103	Radiation Chemistry of Supercritical Water	\$207812
AE104	Development of Experimental Methods for Measurements of Nuclear Cross Sections	\$478362
AE105	Evaluation of Alternate Materials for Coated Particle Fuels for the Generation IV Gas-cooled Fast Reactor	\$294010
AE106	Fast Test Irradiation Facility	\$199996
AE107	Investigation of Fundamental Thermal-Hydraulic Phenomena in Advanced Gas-Cooled Reactors	\$298257
CS117	Development of a Compact Laser-Compton X-ray Source	\$108249
CS118	Advanced Automated Ion Mobility Spectrometer for Explosives Detection	\$222304
CS119	First Responder and DOE Site Recon UAV Capability	\$243464
CS120	Transmission Line Security Monitor and Repeater System Concept	\$153851
CS121	Software Tool-kit for Effective and Repeatable Remote Attacks Against Command and Control Systems used in Electricity Generation and Distribution	\$98708
CS122	TEstbed for Personal Electronic Devices (TEPED)	\$96954
ET116	Advanced Control Architectures for Human-Robot Synergy in Complex, Multi-Operation Domains	\$134918
ET118	Intelligent Control of Multi Nodal Systems	\$84972
ET121	Human Factors for Management of High Consequence Events	\$126285
ET122	Developing the Scientific Basis for Landscape Level Management of Federal Facilities	\$134853
ET123	Genetic Control of Straw Stem Ultrastructure that Affects the Biomechanics of Stem Separation.	\$59913
ET124	Development of Analytical Decision-Making Tools for Energy Efficient Agricultural Biomass Production	\$94878

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INEEL - Idaho National Engineering and Environmental Lab

Project ID	Project Name	FY Total
ET125	Stable Enzymes for Hemicellulose Hydrolysis	\$74618
ET126	Pretreatment Technologies for Cellulosic Biomass	\$84991
ET127	Flow Characterization of Complex Biomass Flows for Bioenergy Feedstock Development	\$84906
ET128	Co-Firing of Coal and Refuse-Derived Fuel with Oil Shale for Control of Environmental Contaminants and Improved Energy Production: Laboratory Studies	\$85031
ET129	Highly Selective Sorbents for Removal of Arsenic from Drinking Water	\$85227
ET130	Investigation and Modeling of Dynamic Strain Rate Effects on Structural Material Response	\$84980
ET131	Novel Abrasion Resistant, Enhanced Flux Ultrafiltration Membranes	\$74738
GC135	Investigation of the Movement and Fate of Chlorinated Hydrocarbons	\$229543
GC136	Modeling of Flow and Colloid Behavior in Subsurface Fractures	\$260560
GC141	Calibration and Enhancement of Geophysical Imaging Tools in a Mesoscale Experimental Facility	\$259702
GC150	Multiscale Modeling of Multiphase (Unsaturated) Flow	\$86551
GC151	Modeling Solute Partitioning at Interfaces	\$85104
GC152	Estimating the Climatic Sensitivity of Vadose Zone Infiltration Rates through Paleohydrologic Analyses	\$33261
GC153	Development and Use of Transgenic <i>Caenorhabditis elegans</i> to Measure Bioavailability of Metals and Mutagenicity in Contaminated Media	\$105672
GC154	Experimental Stochastic Analysis of Unsaturated Flow using a Geocentrifuge	\$161109
GC155	Use of Genetic Markers as a Screening Tool for Ecological Risk Assessment - White Paper	\$4307
GC156	Manipulation of Flow in Subsurface Environments ? Coupling between Precipitation and Fluid/Mass Transport	\$400978
GC157	Stratigraphic Characterization of the Eastern Snake River Plain Aquifer using Geochemical and Paleomagnetic Analysis of INEEL Basalt Core	\$19980
HT100	Hydrogen Production from High Temperature Nuclear Reactors	\$470513
HT101	Polybenzimidazole-Based Composites as Candidate Materials for Hydrogen Containment and Purification	\$137227
HT102	Influence of surface properties on hydrogen effects in pipeline materials	\$116668
HT103	Hydrogen Delivery and Thermal Separation in Natural Gas Pipelines	\$128294

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INEEL - Idaho National Engineering and Environmental Lab

Project ID	Project Name	FY Total
NE130	An Improved Approach for Measuring Thermal Conductivity	\$186437
NE131	Bimodal Nuclear Thermal Propulsion	\$172294
NS134	Enhanced Isotope Ratio Measurement Sensitivity	\$150867
NS135	Smart Antenna Systems in a Wireless Local Area Network	\$248601
NS137	Security of Cyber Systems	\$163921
NS139	Novel Threat-Risk Index Using Probabilistic Risk Assessment and Human Reliability Analysis	\$20049
NS140	Wireless Security Research	\$233132
NS141	Thermomechanical Processing of Titanium 10V-2Al-3FE	\$150022
NS143	Investigation of New Generation Infrared Imaging Systems for the Stand Off Detection of Suicide Bombing Suspects	\$49482
NS144	Radio Frequency Personnel Identification Tool (The Power Boot)	\$59115
PH103	Residual Hazards Management: Decisions Leading Toward Success or Failure?	\$134716
PH104	Modeling an Earth Borehole System for Physical Property Determination in Shallow Subsurface Environments with Emphasis on Vadose Zone Applications.	\$85194
PH105	Improving Soil Water Flux Estimates in the Deep Vadose Zone	\$77358
PH106	A New Hydrogeophysical Method for Characterizing and Monitoring Preferential Flow Paths in Complex Layered and Fractured Basalt	\$71746
PH107	Dependence of Coal Bed Permeability on Pore Pressure and Adsorbed Gas Content	\$84979
RP100	Laser Ultrasonic Corrosion Monitor	\$248840
RP101	Advanced Test Reactor Three Dimensional Neutronics Modeling	\$236572
RP102	Hollow Waveguide Laser Ultrasonics for High Radiation Environments	\$282598
RP103	Estimation of Neutron Irradiation-Induced Displacements-Per-Atom	\$139099
RP104	Improved Techniques for In-Situ Measurements	\$93154
SC116	Supercritical Fluid Catalyst Regeneration Chemistry	\$146208
SC117	Atmospheric Pressure Surface Analysis Mass Spectrometry	\$131383
SC118	Surface-Sensitive Laser Acoustic Studies of Heterogeneous Catalysis	\$123656
SC119	Development of Microelectrode Arrays for In Situ Detection of Localized Corrosion	\$121797
SC120	Advanced Materials for Power Generation	\$97238

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INEEL - Idaho National Engineering and Environmental Lab

Project ID	Project Name	FY Total
SC121	Effect of Environmental Variables on Bicarbonate Transport by Marine and Freshwater Cyanobacteria	\$211289
SC122	Synthesis and Characterization of Hybrid Materials for Advanced Membranes and Molecular Ropes	\$210633
SC123	Investigation Into Parallelization of Fate and Transport Models	\$55132
SM101	Development Of Brazing Alloys And Application Methods for Joining Silicon Carbide To Titanium Alloy	\$150091
SM102	Development of Advanced Ceramics for Armor Applications	\$40694
Total # of Projects for INEEL:	74	Total Cost for INEEL: \$11333093*

*Does not include \$481,204 of administrative and related implementation costs.

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KCP - Kansas City Plant

Project ID	Project Name	FY Total
KC02001-(703522)	Condition-Monitoring of Machinery Using Artificial Intelligence	\$8042
KC02004-(703525)	Advanced Noncontact Inspection Techniques for Precision Dimensional Measurement	\$0
KC02005-(703527)	High-Voltage Cable Insulation Defect Investigation, Detection, and Analysis	\$71
KC02008-(703530)	Research and Evaluation of Controller Area Network (CAN)-based Telemetry	\$29738
KC02009-(703531)	Software-Defined Radio Systems	\$16918
KC02010-(703532)	Specialized Getters for Gases Other Than Hydrogen	\$1705
KC02012-(703536)	Portable Image Recognition and Analysis	\$39630
KC02013-(703561)	Triple Point Field Attenuation for High-Power Ceramic-to-Metal Interfaces	\$90113
KC02024-(703535)	Evaluation of Continuous Tape Casting of Ceramic Materials for Multilayer Structures	\$480
KC03001-(703537)	RFID Tagging of Classified/Sensitive Material/Assets	\$240405
KC03002-(703538)	Evaluate the Feasibility of a Single-Containment Vessel	\$175981
KC03003-(703539)	Suspension-Coated APO-BMI/Carbon Microsphere Molding Compound	\$12975
KC03004-(703540)	Enhanced Hydrogen Getter Development	\$176795
KC03005-(703541)	Integrated Miniaturized Solid-Phase Microextraction/Gas Chromatograph/Mass Spectrometer	\$135061
KC03006-(703542)	Preservation of Digital Data with Knowledge-Based Archives	\$232056
KC03007-(703543)	Nano-fireset Technology	\$138758
KC03008-(703544)	Distributed Initiation Control System	\$86548
KC03009-(703545)	High-Precision Laser Micromachining Development	\$208766
KC03010-(703546)	Packaging of Next-Generation Laser Optics	\$72670
KC03011-(703547)	High-g Penetrator Telemetry Electronics(703547)	\$230606
KC03012-(703548)	Microelectronic System in a Package with High-Density Interconnections	\$211752
KC03013-(703549)	Backend Processing of MEMS(Microelectromechanical Systems)	\$289614
KC03014-(703550)	Wireless Sensor Transmitter	\$182117
KC03015-(703551)	Small-Device Simulation and Modeling of High-Voltage Electromagnetic Field Enhancements, Characteristics, and Sensitivity	\$51637
KC03016-(703552)	Photonic Crystals as Dielectric Mirrors in a Laser Cavity	\$7883
KC03017-(703553)	Biometrics Using High-Resolution Optical Coherence Tomographic Imaging	\$130358
KC03018-(703554)	Knowledge-Aided Sensor Signal Processing & Expert Reasoning	\$46115

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KCP - Kansas City Plant

Project ID	Project Name	FY Total
KC03019-(703555)	Investigation into Improved Techniques and Processes for Creating Small Holes (.005" Diameter) to Closer Location and Size Tolerances	\$76652
KC03021-(703559)	Finite Element Modeling of Fiber Reinforced Composite Structures	\$2669
KC03022-(703558)	Optimal Resource Allocation using Fuzzy Logic & Neural Nets for the Flexible Manufacturing System	\$37879
KC03024-(703560)	Digitization of Reservoir Process Design and Machine Program Generation	\$291
KC03026-(703562)	Relaxor and Antiferroelectric Material Development For High Energy Capacitors	\$71055
KC03027-(703563)	High Power Ceramic Structure Machining and Characterization	\$182019
KC04001-(703565)	Development of High-performance Microwave Packaging for Radio Frequency (RF) Micro-Electromechanical Systems (MEMS)	\$87793
KC04002-(703567)	Demonstrate a Compact, Integrated Test Unit for Verifying Surface Cleanliness	\$76269
KC04003-(703568)	Molecular Design & Optimization of Urethane Encapsulants	\$53580
KC04004-(703569)	Laser Welding of Small Parts Fabricated Using LIGA Processes	\$79847
KC04005-(703570)	Three-Dimensional Borescope with Eddy Current Probe	\$32202
KC04006-(703571)	Pulsed Power Communication Device	\$31399
KC04007-(703572)	Characterization and Application of Non-Contact Inspection Technology	\$169032
KC04008-(703573)	Multi-chip Module Transverter Circuit	\$217083
KC04009-(703574)	Application of Diskless Workstation Technology to Computationally Intensive Manufacturing Applications	\$227089
KC04010-(703575)	Setback Generator for Microfiring Systems	\$122634
KC04011-(703576)	Investigation of Electromagnetic Methods for Examination of Reservoir and Other Welds	\$17596
KC04012-(703577)	Advanced Computer User Authentication Methods	\$192193
KC04013-(703578)	Design Guides for Rapid and Flexible Test Equipment Software Development	\$40430
KC04014-(703579)	Robust Feature Extraction/Pattern Matching Algorithms in Unconstrained Environments	\$236794
KC04015-(703580)	An Accurate and Reliable Multiple Integrated Laser Engagement System (MILES) Compatible Semi-Automatic Pistol for Force-On-Force Engagement Training	\$230351
Total # of Projects for KCP:	48	Total Cost for KCP: \$5001651*

*Does not include \$93,913 of administrative and related implementation costs.

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-2000510DR	A Scaleable Silicon-Based Nuclear Spin Quantum Computer	\$217991
LANL-2001222ER	Scanning Tunneling Microscope Electron Spin Precession Detection for Fundamental Physics and Nanotechnology	\$328903
LANL-2001511DR	Development of High Performance Cold Neutron Spectroscopy at LANSCE	\$797450
LANL-2001518DR	Alpha Models: A Unique Opportunity in Fundamental Fluid Turbulence	\$585365
LANL-2001553DR	Physics Issues in Proton Radiography	\$400677
LANL-2001606DR	Scientific Opportunities With High Intensity Pulsed Cold and Ultra-Cold Neutron Sources	\$513016
LANL-2001607DR	Research to Support Simulation of Complex Biological Systems	\$490223
LANL-2001609DR	Performance Analysis and Modeling of Extreme-Scale Parallel Architectures	\$348643
LANL-2001926ER	Plasma Generation of Nanoparticles	\$217683
LANL-2001938DR	An Operating System for Scientific Computing	\$217495
LANL-20020003DR	Nuclear Isomer Physics	\$1241268
LANL-20020006ER	Unstable Fluid-Fluid Interfaces	\$215087
LANL-20020007ER	Quantum Dynamics and the Quantum-Classical Transition with Entangled Spinor Wavepackets	\$150990
LANL-20020008ER	Mobility and Integrity of the Bacterial Chromosomal Gene Pool	\$207512
LANL-20020009ER	Cooling and Trapping Molecules with Laser Light	\$239272
LANL-20020010ER	Macroscopic Matter Wave Dynamics	\$160428
LANL-20020011ER	Unlocking the Mechanism of Protein Biosynthesis: Computational Investigation of the Ribosomal Functional Complex	\$209288
LANL-20020012ER	Protein Machines: Regulation of Enzyme Function Through Substrate and Protein Interactions	\$145283
LANL-20020014ER	Chemistry of the f-Block Elements in Room Temperature Ionic Liquids	\$158869
LANL-20020015ER	Quantum Wavepacket Dynamics with Trajectories	\$218165
LANL-20020016ER	New Catalysts Containing Phosphonium Groups for Chemical Conversions	\$420391
LANL-20020017ER	Excited States Dynamics and Photochemical Reactions in Large Molecular Systems	\$226030
LANL-20020018ER	Polymeric Chelators for Radioisotope Delivery Systems	\$254095
LANL-20020019ER	Advanced Techniques in Discrete Simulation	\$218667
LANL-20020020ER	Estimating the Bayes Error from Empirical Data	\$211357

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20020021ER	Identification of Interests, Trends and Dynamics in Document Networks	\$106693
LANL-20020022ER	Distributed Sensor Networks with Collective Computation for In-Situ Sensing	\$206821
LANL-20020023ER	Enabling Energy & Environmental Security: Chemical Extraction of Carbon Dioxide from Air	\$286914
LANL-20020024ER	Bone Morphogenesis and Regulation by External Fields	\$169327
LANL-20020025ER	Hydrogen Generation for Fuel Cells by Solid-Electrolyte Membrane Partial Oxidation Reactor	\$218176
LANL-20020026ER	Time Reversed Acoustics Applied to the Earth	\$212713
LANL-20020027ER	General Relativistic Astrophysics of Compact Sources: Core-Collapse Supernovae and Gamma-Ray Bursts	\$255833
LANL-20020028ER	Photon-Counting Optical Spectrophotometry: Opening a New Window for Discovery in Astrophysics	\$229850
LANL-20020029ER	Radio Emissions from Cosmic-Ray/Atmosphere Interactions	\$198588
LANL-20020030ER	Ultrafast Broadband Optical Spectrometer for Dynamic Materials Characterization in a Magnetic Field	\$227573
LANL-20020031ER	Real-Time Localization and Presentation of Neural Activity	\$227519
LANL-20020032ER	Vibration-Free Cooling for Precision Cryogenic Measurements	\$180371
LANL-20020033ER	Single-Domain Nanomagnets: Fabrication and Studies Through the Superparamagnetic Transition	\$236534
LANL-20020034ER	Nanostructured Metals with Unusually High Fatigue Strengths	\$201909
LANL-20020035ER	New Vortex Phases in Layered Magnetic Superconductors	\$192798
LANL-20020036ER	Low Temperature Solid Solution Softening in Ordered Intermetallic Alloys - Towards Improvement of Ductility in High Temperature Materials	\$209100
LANL-20020037ER	Algebraic Approach to Interacting Quantum Systems	\$187750
LANL-20020038ER	Eliminating Short Time-Scales in Long-Term, High-Resolution Studies of Ocean Circulation: A First in Climate Modeling	\$184345
LANL-20020039ER	Statistical Properties of Granular Chains	\$173972
LANL-20020040ER	Implicit Subgrid Turbulence Modeling	\$170789
LANL-20020041ER	Development of an Experiment to Measure Neutron Beta Decay Parameters with a Polarized Cold Neutron Beam	\$199777
LANL-20020042ER	The Electric Dipole Moments and Time Reversal Violation in Low Energy Processes	\$277995
LANL-20020043ER	Study of Open-Charmed Production at RHIC	\$222722

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20020046DR	Understanding Protein Function: From Chemical Reaction to Molecular Recognition	\$1304054
LANL-20020047DR	Electronic Devices Based on Nano-cell Organic Crystals	\$990176
LANL-20020048DR	Bringing Genomes to Life with Phage Antibodies and Mass Spectrometry	\$980501
LANL-20020050DR	Beryllium Chemistry: Toward an Understanding of Chronic Beryllium Disease	\$1123090
LANL-20020051DR	Life Cycles of Active Galaxies	\$974776
LANL-20020052DR	Applied Quantum Technologies	\$1285759
LANL-20020053DR	Probing the Structural Dynamics of Condensed Matter with Ultrafast X-ray Diffraction	\$981664
LANL-20020054DR	Machine Learning for Real-World Data Analysis	\$851773
LANL-20020055DR	New Windows into Shocks at the Mesoscopic Scale	\$1012754
LANL-20020064DR	Interacting Complex Systems	\$1244431
LANL-20020071DR	Damage Prognosis Solutions	\$495141
LANL-20020072DR	Experimental Investigation of Fundamental Processes Relevant to Fusion Burning, Strongly Coupled, Multi-Material Plasmas	\$910254
LANL-20020073DR	Advanced Arbitrary Lagrangian-Eulerian Methods for Complex Flows in Weapons	\$499064
LANL-20020077PRD	Consequences of Competing Interactions on Quantum Phase Transitions in Many-Particle Systems	\$2829
LANL-20020078PRD	Investigating the Kinetics of Free Radical Photo-Polymerizations for Nano-Scale Systems	\$29763
LANL-20020081PRD	Protein Dynamics/Multidimensional Spectroscopy	\$10660
LANL-20020084PRD	Elementary Particle Theory, General Relativity and String Theory	\$23862
LANL-20020103PRD	Ion-Cutting and Bonding of Silicon	\$29423
LANL-20020134PRD	Spectroscopic Investigation of Molecular Interactions in Dye-Sensitized Solar Cells	\$39382
LANL-20020135PRD	Low Temperature Spectroscopic Studies of Individual Nanocrystals	\$22755
LANL-20020136PRD	Sensors for Siderophores Based on Pheromone Detection	\$60573
LANL-20020138PRD	Quantifying the Relationship between the Nature of Structural Defects, the Defect Density, and the Hydration State of Clay Minerals and their Interaction with Fluids	\$15374
LANL-20020143PRD	Quantum Control in Atom Optics	\$20487
LANL-20020161PRD1	Tools for Realizable Quantum Information Processing	\$92416

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20020167PRD1	Solid State Systems for Electric Dipole Moment Searches	\$88883
LANL-20020171PRD1	High Pressure Synthesis and Characterization of Clathrates	\$60593
LANL-20020183PRD1	Search for Quantum Critical Points using High Magnetic Fields	\$55102
LANL-20020194PRD1	Fracture and Crack Growth Behavior in Nanostructured Materials Under Cyclic Loading	\$34212
LANL-20020198PRD1	Arid Land Soil Microbial Processes and Communities	\$36952
LANL-20020202PRD1	The Origin of Elastic Nonlinear Response	\$35593
LANL-20020205DR	Advanced Linux for High Performance Computing	\$477458
LANL-20020222ER	Energy Conversion and Photonics Based on Metal Complex Excited States	\$111803
LANL-20020225ER	Interfacial Solutions: Quasiliquids and Tropospheric Chemistry	\$138218
LANL-20020252PRD2	Interface-Controlled Deformation Physics of Nanolayered Metals	\$56098
LANL-20020288PRD2	Chemical Tuning and Disorder in Quantum-Critical Superconductors	\$88977
LANL-20020299PRD2	Neutron Scattering Study on Quantum Magnetism in Correlated Electron Materials	\$92748
LANL-20020304PRD2	Ultrafast Studies of Dynamics in Condensed Matter Systems	\$90003
LANL-20020360ER	New Modeling Techniques for Strongly-Coupled Atmospheric Processes that Occur in Wildland Fires	\$170838
LANL-20020393PRD3	Synthesis and Characterization of Nanomaterials	\$115554
LANL-20020396PRD3	Long-Time Dynamics of Floppy Systems	\$80812
LANL-20020399PRD3	Crystallization Mechanism in Metal-Oxide Thin Films	\$108243
LANL-20020417PRD3	Electron Microscopy Study of Defects at Interfaces in Nano-Scale Films	\$81283
LANL-20020420PRD3	Numerical Determinations of Viscoelastic Effect on Volcanic Deformation: A Tool for Eruption Prediction	\$103087
LANL-20020421PRD3	Dynamics of Granular Media	\$115561
LANL-20020459ER	Ultrahigh Weight Biomolecule Separation and Detection	\$261207
LANL-20020463ER	Nanochemistry of Catalysts	\$70104
LANL-20020494PRD4	Preparation and Characterization of Monodisperse Semiconductor Quantum Dots: Towards True Artificial Atoms	\$108469
LANL-20020505PRD4	The Effect of Forest Disturbance and Climate Change on the Isotopic Composition of Tree Rings and Respired Carbon Dioxide	\$101545
LANL-20020517PRD4	The Synthesis of Metal Complexes Containing Actinide-Transition Metal and Actinide-Actinide Metal Bonds	\$112258

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20020521PRD4	Novel Structures Based on Multicompartment Self-Assembly of Fluoro/Hydro-Carbon Surfactants	\$132772
LANL-20020525PRD4	Electronic Pumping of Nanocrystalline Quantum Dots	\$118839
LANL-20020529PRD4	Advanced Computational Methods in Mobile Computing and Computational Biology	\$59576
LANL-20030022DR	Novel Physical Behavior of Nanostructured Materials Derived from Interface Atoms	\$1196765
LANL-20030029DR	Structural Bioinformatics: Inferring Protein Function from Sequence and Structure on a Genomic Scale	\$1347761
LANL-20030030DR	Neutrino Physics and Fundamental Symmetries	\$1427067
LANL-20030036DR	New States of Matter Near Zero-Temperature Phase Transitions	\$1786619
LANL-20030037DR	Physics-Based Analysis of Dynamic Experimentation and Simulation	\$1251794
LANL-20030038DR	Stochastic Closure for Multi-Scale Simulations	\$516030
LANL-20030050DR	Scaling Relationships in Biology: Developing and Applying a Unifying Theory from Molecular through Biosphere Scales	\$1694922
LANL-20030059DR	Clathrate Hydrate Science and Technology	\$1296575
LANL-20030067DR	Water on Mars	\$1178526
LANL-20030068DR	Non-equilibrium Electron Spin Transport and Dynamics in Solids	\$1504726
LANL-20030069DR	Interfacial Energy and Charge Transfer in Multifunctional Bio-Inspired Nano-Assemblies	\$1294461
LANL-20030084DR	Quasiparticles and Phase Transitions in High Magnetic Fields: Critical Tests of our Understanding of Plutonium	\$1367952
LANL-20030091DR	Actinide Partitioning at Solid-Solution Interfaces	\$1202070
LANL-20030119ER	Synthesis of Labeled Glycosaminoglycans for Structural and Dynamical Studies of Macromolecular Complexes	\$327653
LANL-20030129ER	Collisionless Magnetic Reconnection in 3D Geometries	\$252023
LANL-20030137ER	Improving Local Search	\$281964
LANL-20030138ER	Computational Study of Intense Short-Pulse Laser-Matter Interactions	\$274738
LANL-20030151ER	Calculating the Kaon Bag Parameter B_K on Unquenched Lattices	\$282908
LANL-20030162ER	Automatic Detection of Salient Objects in Real-World Imagery	\$237001
LANL-20030169ER	Determining Fundamental Roles of Magnetic Field in the Universe: Laboratory Plasma Flow Experiments on Magneto-Rotational Instability (MRI) and Laminar Plasma Dynamo	\$253757

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20030179ER	Bacillus Anthracis Iron Acquisition	\$267061
LANL-20030181ER	Efficient Computation of Free Energy Differences Relevant to Rational Drug Design	\$240046
LANL-20030210ER	Measure-Valued Solutions of the Lagrangian-Averaged Euler Equations	\$301393
LANL-20030216ER	Strong Ultrafine Grain Metals by Severe Plastic Deformation and Strain Path Changes: Application to Beryllium (Be)	\$261183
LANL-20030225ER	Processor-Coupled Computing Fabric	\$199689
LANL-20030227ER	Estimation of Aquifer Recharge Using Time-Lapse Gravity Surveys	\$226669
LANL-20030232ER	Catalysis by Artificial Inorganic Enzymes	\$255149
LANL-20030248ER	Distributed Multi-scale Markov Chain Monte Carlo for Uncertainty Quantification in Inverse Problems	\$283071
LANL-20030251ER	Using Neutrons to Explore Peculiar Elastic Behavior of Rocks	\$180704
LANL-20030258ER	Immune Cell-Based Biosensor for Rapid Pathogen Detection and Identification	\$274754
LANL-20030261ER	Transport Studies of Vortex Motion in High Temperature Superconductors, MgB(2), and Borocarbides.	\$277286
LANL-20030292ER	Synthesis and Characterization of Selective Ligands	\$431827
LANL-20030301ER	Magnetocarcinotherapy: A Novel Molecular Imaging Diagnostic and Treatment Method for Cancers	\$266823
LANL-20030310ER	Polymer-Assisted Aqueous Deposition (PAAD) of Metal-Oxide Films	\$204904
LANL-20030317ER	Three Dimensional Effects in Core-Collapse Supernovae: Rotation, Convection and Neutron Star Kicks	\$159206
LANL-20030351ER	Computational Schemes for Multiscale Modeling of Polymers	\$214665
LANL-20030352ER	Double Beta Decay	\$218576
LANL-20030355ER	Thin-Film Semiconductor Sensors on Polycrystalline Substrates	\$356849
LANL-20030356ER	An Integrated Microarray-Based Platform for Sensitive High-Throughput Pathogen Detection and Identification	\$380635
LANL-20030359ER	Electrically Pumped Colloidal Nanoemitters: Combining Top-Down and Bottom-Up Approaches in Nanoscale Engineering	\$254291
LANL-20030360ER	Viral Invasion: Breaching the Cells Outer Defenses	\$279847
LANL-20030363ER	Testing for a Relativistic Symmetry in the Nucleon-nucleon Interaction	\$160187
LANL-20030365ER	Cosmological Vacuum Energy	\$231644
LANL-20030398ER	Desalination by Molecular Design	\$207330

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20030400ER	Atomic Level Engineering of Nanostructures and Devices	\$251977
LANL-20030419DR	Assembly and Actuation of Nanomaterials Using Active Biomolecules	\$508879
LANL-20030420DR	Active Photonic Nanostructures	\$620472
LANL-20030486DR	Astrophysical Survey Science and Technology	\$477463
LANL-20030487DR	Physics of Information	\$1114852
LANL-20030488ER	Formation and Distribution of Galaxies: An Advanced Computational Approach	\$368272
LANL-20030489DR	Advanced Diagnostics for Characterizing Nanoscale Materials	\$956339
LANL-20030494ER	Design of the Next Generation Ground-Based Gamma-Ray Burst Detector	\$77384
LANL-20030497PRD1	Analysis and Generation of Magnetic Flux Pinning Sites in YBa2Cu3O7-d Films	\$104182
LANL-20030508ER	Mass Spectrometry and Systems Biology Based Approach for Identifying Biomarkers in Cancers	\$251984
LANL-20030519PRD1	Solid-State Actinide Chemistry	\$128480
LANL-20030522PRD1	Searching for Superhard Materials from Nanometric Scale and at Extreme Conditions	\$143587
LANL-20030526PRD1	Identification of the Energy Gap in the 2D Metallic State of Strongly Interacting Fermions	\$127176
LANL-20030534PRD1	Genomic Instability and Mammalian Aging	\$48898
LANL-20030544PRD1	Ultracold Collisions of Charged Particles	\$112822
LANL-20030549PRD1	Physics of Metallo-Organic / Organic Materials and Devices	\$76721
LANL-20030562PRD1	Synthesis of Continuous Carbon Nanotubes	\$119021
LANL-20030568PRD1	Interaction of Magnetism and Superconductivity in Novel Superconductors	\$138307
LANL-20030579PRD1	Cosmic Cinematography: Opening a New Window for Discovery in Astrophysics	\$129181
LANL-20030597ER	LOFAR - A Low Frequency Radio Interferometer for Astronomy and Space Sciences	\$33063
LANL-20030604ER	Preparation & Characterization of Inorganic & Organic High-Nitrogen Energetic Materials	\$24714
LANL-20030611PRD2	Active Photonic Structures Based on Semiconductor Nanocrystals	\$33051
LANL-20030619ER	Study of Dielectric Properties of Liquid Helium	\$72130
LANL-20030622ER	Complex Dynamical Earth Systems	\$450116
LANL-20030623ER	Space Weather Foundations	\$340322

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20030624ER	Dynamical Astrophysics	\$388359
LANL-20030625ER	Planetary Geophysics-Core to Crust	\$392669
LANL-20030635PRD2	Theoretical and Computational Studies of the Behavior of Plasma at the Edge of a Tokamak	\$103370
LANL-20030637PRD2	Global Three-Dimensional Magnetospheric Structure	\$112437
LANL-20030642PRD2	Superheating upon Superfast Dynamic Loading	\$141832
LANL-20030643PRD2	Theoretical Studies of Advanced Materials	\$102392
LANL-20030663PRD2	Electric Field Control of Optical and Electronic Properties of Semiconductor Quantum Dots	\$101219
LANL-20030664ER	Compton Enhanced Gamma Reconstruction	\$74937
LANL-20030666PRD2	Host-Pathogen Interactions of Intracellular Microbes	\$104685
LANL-20030671ER	New Directions in Catalysis	\$37742
LANL-20030672ER	Novel Optical Processing Methods	\$44886
LANL-20030680PRD2	Pattern Formation and Dynamics in Systems with Competing Forces	\$97983
LANL-20030699PRD3	Trace-Level Analysis of Radionuclides Using Membrane-Based Ion-Selective Chemical Sensors	\$107646
LANL-20030700PRD3	Wiedemann-Franz Law at a Quantum Critical Point	\$24254
LANL-20030718PRD3	Neutrino Physics, Astrophysics and Cosmology	\$114593
LANL-20030744PRD3	Investigation of Electrical Properties of [Ba _{1-x} Sr _x TiO ₃ /Ba _{1-y} Sr _y TiO ₃] Multilayers for Applications in Tunable Microwave Devices	\$101393
LANL-20030760ER	Selection of Binding Agents Against SARS Proteins for Diagnosis and Therapy	\$99706
LANL-20030766PRD3	Development of Self-Monitoring and Self-Repairing Structural Systems using Smart Materials	\$130883
LANL-20030770PRD3	Short-Term Decoherence in Quantum Optics	\$81892
LANL-20030811PRD4	Fracture and Damage Evolution of Fluorinated Polymers	\$109019
LANL-20030835PRD4	The Early Afterglows of Gamma-Ray Bursts	\$24101
LANL-20030837PRD4	An Organometallic Chemistry Approach to the Preparation of Fluorinated Polymers	\$108125
LANL-20030839ER	Proteins in Protein Networks	\$416127
LANL-20030840PRD4	Fosmidomycin and B. Anthracis	\$82568
LANL-20030859PRD4	Fault Tolerant and Recovery-Oriented Computing	\$88650

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20030861PRD4	Mechanisms of Creep in Bulk Metallic Glasses	\$99267
LANL-20030865PRD4	Compton Imaging and High Energy Astrophysics	\$102813
LANL-20030874PRD4	Ion Beam Slicing with Point Defect Engineering	\$118943
LANL-20040014DR	Localization and Itinerancy in Plutonium	\$1609629
LANL-20040031DR	Scalable Reconfigurable Computing: Exploiting an Exponential Increase in Computational Density	\$988433
LANL-20040040DR	Search for Variation of the Fine Structure Constant with Optical Frequency References	\$1358637
LANL-20040042DR	Science of Geological Carbon Sequestration: Integration of Experimentation and Simulation	\$1019164
LANL-20040049DR	Solid-State Quantum Information Processing : A New Approach to Demonstrate Quantum Entanglement	\$991728
LANL-20040064DR	Energetic-Particle Interactions with Dense Plasmas: A Study Relevant to Boost and to Fast Ignition Using Laser-Driven High-Current Charge-Neutralized, MEV/Nucleon Ion Beams	\$1404514
LANL-20040069DR	High-Power MM-Wave Source Technology	\$1063559
LANL-20040072DR	Radiography with Background Radiation	\$1647871
LANL-20040087DR	Understanding the Molecular Mechanisms of Pathogen Recognition by the Immune System: Biothreat Reduction through Predictive Science	\$1392480
LANL-20040093DR	Understanding Electronic and Magnetic Communication Between f-Electrons in Actinide and Lanthanide Materials	\$1463195
LANL-20040104DR	Testing Time-Reversal Symmetry with Ultracold Neutrons and with Solid State Systems	\$1328237
LANL-20040120DR	Fluorobody Switches: Recognition Proteins Which Fluoresce upon Binding Targets	\$1306782
LANL-20040134DR	Bose-Einstein Condensate Physics: Dynamics and Applications	\$1793735
LANL-20040141DR	Statistical Physics of Infrastructure Networks	\$1499076
LANL-20040167ER	Exploring the Turbulent-Viscosity Effect in Solar-Wind/Magnetosphere Coupling	\$105865
LANL-20040171ER	Fermion Quantum Phase Transitions	\$266806
LANL-20040184ER	Response Networks of M. Tuberculosis and Bio-threat Agents	\$236313
LANL-20040187ER	Electroweak Symmetry Breaking	\$325042
LANL-20040193ER	Dark Lightning: Throwing Light on Monster Convective Storms	\$179775

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20040195ER	Precision Cosmology: A First Principles Approach to Galaxy Clustering	\$395698
LANL-20040201ER	The Dynamic Response of Polymers Under Stress Using a Unique Probe for the Molecular Events Governing Materials Responses	\$208679
LANL-20040212ER	Detecting Weak Gaseous Plumes in Hyperspectral Remote Sensing Imagery	\$255156
LANL-20040213ER	Ion-Beam Synthesis and Luminescence Characterization of a New Class of Nanomaterials-Nanophosphors	\$321454
LANL-20040218ER	Error-Minimizing, Implicit Adaptive-Grid Solutions of Time Dependent Problems	\$223372
LANL-20040236ER	Computational Complexity and Quantum Entanglement	\$192311
LANL-20040237ER	New Mathematical Tools for the Quantum Dynamics of a Bose-Einstein Condensate	\$229737
LANL-20040256ER	Hybrid Density Functional Theory Investigations in Condensed Matter	\$269394
LANL-20040259ER	Nonlinear-Acoustic Tomographic-Imaging of Damage in Solids	\$289221
LANL-20040262ER	Understanding and Predicting the Initiation of DNA Transcription	\$225839
LANL-20040284ER	The Dynamics of Two-Dimensional Turbulence	\$366452
LANL-20040291ER	Tracking Single Molecules in Three Dimensions	\$230199
LANL-20040294ER	Study of Phases with Hidden Order Parameter in the Actinides and other Strongly Correlated Electron Systems	\$227786
LANL-20040295ER	Design Principles of Genetic Regulatory Networks	\$260255
LANL-20040301ER	Understanding Global Planetary Processes Through a Study of the Moon's Surface Composition	\$277420
LANL-20040326ER	Massively Parallel Fabrication of Complex Nanoscale Structures in Soft Materials	\$349246
LANL-20040344ER	Understanding and Controlling the Chemistry of Biocidal Polymers	\$213456
LANL-20040358ER	Measurement of Vibrational Anharmonicities for Chemical Dynamics	\$334383
LANL-20040359ER	Spatially-Isochronous Time-of-Flight Mass Spectrometer	\$236310
LANL-20040379ER	Modeling Invariance in Data Space	\$290076
LANL-20040391ER	Quantum Devices for Electronic Circuitry and Advanced Detection	\$251495
LANL-20040393ER	Genetic Programs Underlying Key Physiological States in Burkholderia Pseudomallei	\$252340
LANL-20040408ER	Coherent Control of the Raman Fingerprint Spectrum via Single-Pulse Coherent Anti-Stokes Raman Scattering	\$258123

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20040412ER	Mining the Sky with Both Eyes Open: Stereoscopic Monitoring of the Night Sky	\$414097
LANL-20040415ER	Supernovae Neutrinos	\$318536
LANL-20040419ER	Statistical Models for Natural Hraphs	\$226186
LANL-20040425ER	A Dynamic 2-D Ultrasonic Particle Trap for Particle and Cell Array Processing of Biological Assays in Micro-Fluidic Channels	\$350645
LANL-20040430ER	Synthesis of Continuous Carbon Nanotubes	\$279189
LANL-20040438ER	Quantum Control and Information Processing Using Semiconductor Quantum Dots	\$327491
LANL-20040454ER	High Throughput Isolation of Optimal Protease Substrates	\$324070
LANL-20040461ER	Secure Communications in Fiber Links Using Randomness and Nonlinearity of Optical Fibers	\$211234
LANL-20040478ER	Hyperthermal Surface Ionizer for Aerosol Chemical and Biological Analysis	\$340397
LANL-20040480ER	Self-Healing High-Perfomance Parallel Computers	\$241838
LANL-20040481ER	Efficient Modeling of Systems with Uncertainty on Multiple Scales	\$207562
LANL-20040508ER	The Synthesis of Single Walled Carbon Nanotubes with Specific Diameters	\$317690
LANL-20040558ER	Characterizing Thin Films by Laser-Generated Acoustics	\$197153
LANL-20040840DR	Computational Models of the Water Cycle of Semi-Arid Basins	\$489221
LANL-20040842DR	Fission Fragment Physics in Extreme Environments (U)	\$421024
LANL-20040844DR	Phase Transitions and Strong Anharmonicities in Plutonium	\$1805455
LANL-20040848ER	Exploring Novel Magneto-Electric Phenomena in Frustrated Spin Systems	\$380107
LANL-20040849ER	Imaging Optical Interferometry	\$460053
LANL-20040862ER	Software-Based, Power-Aware Computing	\$150950
LANL-20040873ER	Integration of Disparate Sensor Systems/Data Sources for Homeland Security	\$71805
LANL-20040877ER	Investigating the Mullin's Effect in Silica-Filled Polymers	\$23826
LANL-20040882PRD1	Exploring Protein Cameleons Using Single Molecule Spectroscopy	\$41469
LANL-20040884PRD1	Microscopic High Stiffness and High Damping Materials	\$8119
LANL-20040885PRD1	Mechanistic Studies on Fe(III)(hydr)oxide Dissolution and Actinide Mobilization in an Aqueous Aerobic Environment	\$34948
LANL-20040894ER	Theory of Detonation in Heterogeneous Explosives	\$70895
LANL-20040895ER	Probing Nucleosynthesis with DANCE	\$72685

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20040897PRD1	Supernova Light Curves	\$4085
LANL-20040908PRD1	Thermal Shrinkage and Compressional Expansion in Framework Oxides: Underlying Structural Mechanisms and Phase Stability	\$44777
LANL-20040909PRD1	New Theoretical and Computational Approaches to Ultra-Relativistic Heavy Ion Collisions	\$36060
LANL-20040919PRD1	Optical Probing of Dense Structured Media: 3D Radiative Transfer Theory at Work	\$47002
LANL-20040923ER	Development of Technology for Particle Astrophysics and Other Applications	\$44115
LANL-20040937PRD2	Valence Ambiguity in Organoactinide Chemistry	\$26501
LANL-20040938ER	Fission-Fragment Scattering Within Actinide Crystal Structures	\$57720
LANL-20040941PRD2	Magnetic Field Induced Quantum Critical Points in Correlated Electron Systems	\$30868
LANL-20040953PRD2	Multifunctional Homogeneous Catalysis for Alkane Functionalization	\$26027
LANL-20040961PRD2	Femtosecond Optical Combs for Precision Spectroscopy	\$46284
LANL-20040967PRD2	High Resolution Retinal Prosthesis: Theory and Experiment	\$50958
LANL-20040969PRD2	Coherent Terahertz Radiation From Intense Laser-Produced Plasmas	\$36531
LANL-20040980DR	Advanced Computer Architectures and Algorithmic Implications	\$948230
LANL-20040985PRD3	MiniBooNE Neutrino Oscillation Analysis	\$39103
LANL-20040990ER	Time Critical Threat Detection and Evidence Marshaling	\$290624
LANL-20040991ER	Practical Discharge-Pumped, Dressed Atom, Coherent Light Amplifiers and Generators	\$29206
LANL-20040992ER	Novel Polymers for Fuel Cells	\$250920
LANL-20040993ER	Coarse-Grained Model for Polymer Solutions	\$79636
LANL-20040994ER	Beryllium Alanate as a Hydrogen Storage Media	\$52319
LANL-20040995ER	Understanding the Ultra-High-Energy Cosmic Rays with the High Resolution Fly's Eye Detector	\$108386
LANL-20040996ER	Radiation Transport Code Development for Satellite and Other Space Probes	\$343525
LANL-20040997ER	Intrinsic Nanoscale Quantum-Coherent Switches	\$226694
LANL-20040998ER	Host-Pathogen Interactions	\$68766
LANL-20041005PRD3	Infinite Layer High-Tc Cuprate Superconductors	\$29532
LANL-20041010DR	Dynamics of Complex Networks: Biology, Information, and Security	\$377253
LANL-20041027PRD3	Materials Interactions with Terahertz Radiation	\$19151

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LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20041034PRD3	Rydberg Atom Interactions in Fields and Plasmas	\$1753
LANL-20041075ER	Investigations into the Fundamental Chemistry and Structure of Hybrid Organic-Inorganic Materials	\$122614
LANL-20041078ER	Nano-Scale Physics and Near-Contact Hydrodynamics	\$108066
LANL-20041086ER	Nuclear Materials Detection Algorithm Development for Port-of-Entry Applications	\$27380
LANL-20041091ER	Generation of Novel Materials with Applications to LANL Programmatic Goals	\$9678
LANL-20041097PRD4	High Precision Measurements of CO2 and O2 to Determine Variability of Soil Carbon Turnover Time	\$26756
Total # of Projects for LANL:	297	Total Cost for LANL: \$102147359

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LBNL - L. Berkeley National Lab

Project ID	Project Name	FY Total
LB01024	Dynamic Reorganization of Chromosome Architecture During Meiosis	\$61967
LB02001	Novel Terahertz and Infrared Source using a Laser Wakefield Accelerator and Applications	\$199101
LB02002	Solid-State Quantum Computer Development with Single Ion Implantation	\$146816
LB02004	Development of a Coherent Far-Infrared Synchrotron Radiation Source	\$228993
LB02006	Simulations of Femtosecond X-Ray Spectra of Photoexcited Molecules	\$73169
LB02009	Disorder and Multiple Length Scales in Non-Fermi Liquid f-Electron Intermetallics	\$74693
LB02010	Investigation of Charge Transfer in Organic Electronics Using Ultrafast Spectroscopy and Targeted Synthesis	\$119511
LB02012	Experimental Mathematicians Toolkit	\$59994
LB02013	Infrastructure for Improving Protein Structure Prediction in Computational Biology	\$150016
LB02014	New Machine Learning and Data Mining Methods for Genomics and Climate Data Analysis and Knowledge Discovery	\$86023
LB02018	Combinatorial Algorithms in Scientific Computing	\$68969
LB02020	Microbial Controls on Metals in the Environment	\$150000
LB02026	Reactivity of Nanoparticles in Natural Environments	\$79999
LB02028	Miniaturized Systems for Particle Exposure Assessment	\$16913
LB02031	Systems Biology: Biological Input-Output Devices	\$119937
LB02039	Effective Field Theory for Few and Many-Body Nucleon Systems	\$101000
LB02040	Allosteric Mechanisms in Protein Kinases	\$125042
LB02041	Structure and Functional Characterization of Heme Protein Sensors	\$99621
LB02043	Coherent Control and Quantum Information in Polyatomic Molecules	\$259334
LB02044	Scientific Investigations and Technique Development of Wet Spectroscopy, High-Pressure Photoelectron Spectroscopy, and Scanning Transmission X-ray Microscopy for Molecular Environmental Science	\$139895
LB02045	Parallel Methods for Robust Optimization and Uncertainty Quantification	\$105403
LB02048	Research on a Next Generation Vertex Detector	\$100004
LB02049	Conformation and Reaction Dynamics at the Single Molecule Level	\$85780
LB03002	Molecular Control of Interfaces Between Biological and Synthetic Materials	\$226758
LB03004	Comparative Studies Between Earth and Planetary Sciences	\$50000

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LBNL - L. Berkeley National Lab

Project ID	Project Name	FY Total
LB03006	Microscopic Imaging in High-Throughput Screening for Crystals of the Bacterial Ribosome	\$75228
LB03008	Application of Real-Time PCR with Reverse Transcription for Quantification of Specific Microbial Activity in Complex Communities	\$71999
LB03009	Short Period Superconducting Undulator Development	\$117059
LB03012	Interactive Visualization Methods for Exploration and Comparison of Multi-Billion Base Pair Sequence Data	\$79887
LB03013	Novel Ultra-high Resolution (to 10 meV) Inelastic Scattering Spectrograph to Study Coupled Electron-Orbiton-Phonon Interactions	\$167735
LB03015	Determining the Light-Absorbing Properties of Aerosol Particles	\$104110
LB03017	Modeling Quantum Coherence and Transport in Nanoscale Spin, Charge, and Flux Devices	\$54914
LB03019	Aberration Correction of Electron Microscopes	\$125603
LB03020	Ex-Situ and Remote Molecular Imaging and Spectroscopy	\$379599
LB03021	Optimal Solvers for Infinite-Dimensional Hamiltonian Systems	\$93807
LB03022	Superconducting Magnet Systems for Ex Situ NMR Spectroscopy	\$116731
LB03023	Soft X-Ray Spectroscopy of Liquid Surfaces	\$104330
LB03024	Characterization of Adult Stem Cell Involvement in Mammary Gland Development	\$73694
LB03027	Evaluation of Dynamic Air Quality Impacts of Distributed Generation	\$69999
LB03028	Electron Production and Collective Field Generation in Intense Particle Beams	\$95468
LB03030	Evolution of Computer Architecture Alternatives	\$174923
LB03032	Identification and Analysis of Determinants of Centromere Identity in <i>Drosophila</i>	\$174664
LB03033	Future Experiments in Neutrino Physics	\$64000
LB03034	Identification and Characterization of Conserved Noncoding Sequences Using Comparative Genomics and Transgenic Technology	\$64925
LB03035	Microscopic Theory of Protein Surface: Structure, Response, and Design	\$180059
LB04001	Properties of Nanocrystals under Extreme Conditions	\$157884
LB04002	Membrane-Protein Cryo-EM	\$99904
LB04003	High Throughput Strategy for Protein Complex Identification	\$195575
LB04004	Autonomous Sensors for Ocean Dissolved Organic Matter	\$232563

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LBNL - L. Berkeley National Lab

Project ID	Project Name	FY Total
LB04005	Development of Biosensors for Endocrine Disrupting Compounds in Agricultural Watersheds	\$67979
LB04006	Analysis of Complex Phosphorylation Patterns in a Key DNA Repair Protein by Coupling Surface Plasmon Resonance and Tandem Mass Spectrometry	\$161890
LB04007	Techniques of Sample Controls for a Transmission Electron Aberration-corrected Microscope	\$184026
LB04008	Gold-mediated Assembly of Germanium Island Arrays on Silicon	\$110521
LB04009	Next Generation Codes for Modeling Subsurface Processes	\$143926
LB04010	Molecular Microscopy and Tomography	\$74715
LB04011	Functional Interpretation of Cancer Genomes	\$684944
LB04012	Designing a Novel Reactor Neutrino Experiment for Measuring the Mixing Angle Theta13	\$263332
LB04013	Coherent X-ray Diffraction Imaging (CXDI)	\$93656
LB04014	Neuroimaging with Advanced Molecular Probes	\$228425
LB04015	Structural Genomics Tools for Membrane Proteins	\$164728
LB04017	Research and Development for Double Beta Decay Experiments	\$280000
LB04018	Nanoscale Lithography to Guide Self-Assembly for the Creation of Functional, Hierarchical Nanostructures	\$72234
LB04019	Critical Accelerator Technologies for Future Advanced Light Sources	\$786191
LB04020	Extending Electron Delocalization in Mixed-Valent Molecular Assemblies	\$53605
LB04021	Structured Cathodes for Efficient Organic LEDs	\$103973
LB04022	Imaging Three-dimensional Signaling Networks in Normal and Malignant Tissue	\$107702
LB04023	Evaluating Aerosol Effects on Regional and Global Energy and Water Budgets	\$109968
LB04024	Optimizing Genomic Data Storage for Wide Accessibility	\$151574
LB04025	California Water and Energy System: An Approach for Addressing Future Crises	\$239970
LB04026	Making the Most of Sequencing: Improved Assembly, Improved Protocols, and True Comparative Annotation Tools	\$149812
LB04027	Spectroscopy and Dynamics of Pure and Doped Helium Nanodroplets	\$85052
LB04028	Novel High-temperature Membranes and Electrocatalyst Structures for Fuel Cells	\$149853
LB04029	Advanced Computational Methods for Photon- Molecule Collision Processes	\$284070

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LBNL - L. Berkeley National Lab

Project ID	Project Name	FY Total
LB04030	Ultrafast Magnetization Dynamics	\$100500
LB04032	Developing Dynamic Soft X-ray Scattering to Probe Spatial and Temporal Fluctuations in Nanomagnets	\$93154
LB04034	Advancing the Next Generation of Rock-Fluid Imaging and Stimulation Technologies	\$67981
LB04035	Magnetism at the Nanometer Scale in Spin Polarized Materials	\$82825
LB04036	Development of Light-Switchable Potassium Channels	\$71994
LB04037	High Average Power Laser Amplifier	\$446283
LB04038	Gas Phase Studies of the Building Blocks of Life	\$59967
LB04039	Development of Techniques for the Study of Large Macromolecular Complexes Using X-ray Crystallography	\$49354
LB04040	Analysis and Modeling of Multicore Induction Cell Voltage Distribution	\$39987
LB04041	High-throughput Production of Proteins and Protein Complexes	\$120715
LB04042	Development of a Novel DNA/RNA Sequencing Tool	\$49991
LB04043	World Energy Scenarios: The Crucial Role of Energy Demand	\$75000
LB04044	Lensless Imaging of Yeast Cells	\$15058
Total # of Projects for LBNL:	86	Total Cost for LBNL: \$12028553

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
01-ERD-098	Spectroscopy of Shock-Compressed Deuterium	\$115249
01-ERD-101	Stroke Sensor Development using Microdot Array Sensors	\$134467
01-ERD-106	A Hydrophobic Silica Aerogel-Granular Activated Carbon Composite for Removing Arsenic and Hexavalent Chromium from Groundwater	\$81215
02-ERD-002	Single-Cell Proteomics with Ultrahigh-Sensitivity Mass Spectrometry	\$350678
02-ERD-004	Structure and Spectroscopy of Black-Hole Accretion Disks	\$178638
02-ERD-006	Reaching Isochoric States of Matter by Ultrashort-Pulse Proton Heating	\$419505
02-ERD-008	Extremely-High-Bandwidth Diamond Tool Axis for Weapons Physics Target Fabrication	\$363577
02-ERD-010	Ultrasonic Nondestructive Evaluation of Multilayered Structures	\$263131
02-ERD-012	Proton Radiography of Laser-Plasma Interactions with Picosecond Time Resolution	\$109436
02-ERD-013	Dense Plasma Characterization by X-Ray Thomson Scattering	\$166389
02-ERD-014	Nanoscale Fabrication of Mesoscale Objects	\$357993
02-ERD-016	A Three-Dimensional Model of Signaling and Transport Pathways in Epithelial Cells	\$125689
02-ERD-018	Development of Ultrasensitive High-Speed Biological Assays Based on 2-D Flow-Cell Detection of Single Molecules	\$412595
02-ERD-021	Modern Chemistry Techniques Applied to Metal Chelation with Medical and Environmental Applications	\$226444
02-ERD-023	Gaseous Laser Targets and Optical Diagnostics for Studying Compressible Turbulent Hydrodynamics	\$183434
02-ERD-025	The Properties of Actinide Nanostructures	\$408646
02-ERD-027	Local-Scale Atmospheric Reactive-Flow Simulations	\$355142
02-ERD-033	Rapid Resolidification in Metals Using Dynamic Compression	\$325507
02-ERD-035	Remote-Sensing Signatures for Ballistic Target Interceptions	\$385866
02-ERD-040	Development of a Fast Microfluidic Mixer for Studies of Protein Folding Kinetics	\$76149
02-ERD-046	Magnetic Transition Metals and Oxides at High Pressures	\$277874
02-ERD-047	A Revolution in Biological Imaging	\$754931
02-ERD-054	Single-Particle Nanotracking for Genomes-to-Life Applications	\$271495
02-ERD-058	Transport and Biogeochemical Cycling of Iodine-129 from Nuclear Fuel Reprocessing Facilities	\$235634

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
02-ERD-061	Concealed-Threat Detection at Multiple Frames per Second	\$509625
02-ERD-066	Dynamic Simulation Tools for the Analysis and Optimization of Novel Filtration, Sample Collection, and Preparation Systems	\$213429
02-ERD-070	Exploring the Linkage between Impurities and Optical Properties in Rapid Growth of Crystals	\$971679
02-ERD-071	Development of a Quantum-Limited Amplifier using a Direct-Current Superconducting Quantum-Interference Device	\$146330
02-ERI-003	ViSUS: Visualization Streams for Ultimate Scalability	\$378985
02-ERI-004	A Tunable, Monochromatic, 1-Angstrom, Compton Scattering X-Ray Microfocus for Multiwavelength-Anomalous Diffraction Experiments	\$206311
02-ERI-005	Direct Imaging of Warm Extrasolar Planets	\$166987
02-ERI-006	Exchange Coupling in Magnetic Nanoparticles Composites to Enhance Magnetostrictive Properties	\$223961
02-ERI-007	Enabling Large-Scale Data Access	\$253343
02-LW-026	Beta-Decay Experiments and the Unitarity of the Cabibbo-Kobayashi-Maskawa Matrix	\$100000
02-LW-043	The Kinetic Stabilizer: A Route to a Simpler Magnetic Fusion System	\$132582
02-SI-004	Short Pulse: Enabling Relativistic Applications for Advanced Inertial-Confinement Fusion	\$2182634
03-ERD-001	Chemical Dynamics of High-Pressure Interfaces	\$204365
03-ERD-002	Adaptive Optics Views of the Hubble Deep Fields	\$302105
03-ERD-003	Photon Collider Physics	\$237199
03-ERD-004	Quantum Electrodynamics and Electron Collisions in the Superstrong Fields of K-Shell Actinide Ions	\$377181
03-ERD-005	Exploring Properties of Quantum Chromodynamics with Proton-Nucleus and Deuteron-Nucleus Collisions	\$390720
03-ERD-006	Correction of Distributed Optical Aberrations	\$311834
03-ERD-007	Ultrafast Radiation Detection by Modulation of an Optical Probe Beam	\$438782
03-ERD-008	Electron Production and Collective Field Generation in Intense Particle Beams	\$230318
03-ERD-009	A Coupled Turbulence-Transport Model for Edge Plasmas	\$316629
03-ERD-013	DNA Detection through Designed Apertures	\$364249
03-ERD-015	Strain Rate Scaling of Deformation Mechanisms	\$352274

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
03-ERD-017	Phonon Dispersion Curves Determination in delta-Phase Plutonium-Gallium Alloys	\$699464
03-ERD-018	Determination of the Microstructural Morphology of Shock-Induced Melt and Resolidification	\$324852
03-ERD-019	Mononitride Fuel Development for STAR and Space Applications	\$151506
03-ERD-021	Analyzing the Long-Range Transport of Asian Aerosols using an LLNL Atmospheric Model and CAMS/NOAA Measurements from Northern California	\$215731
03-ERD-022	Environmental Fate of Organo-Phosphorus Compounds Related to Chemical Weapons	\$152905
03-ERD-023	Propagation Models for Predicting Communication System Performance in Tunnels, Caves and Urban Canyons	\$39248
03-ERD-024	Microfluidic System for Solution Array-Based Bioassays	\$337783
03-ERD-027	Adaptive Mesh Refinement Algorithms for Parallel Unstructured Finite Element Codes	\$322907
03-ERD-030	Entity-Based Modeling of Population-Based Systems	\$55213
03-ERD-031	Detection and Tracking in Video	\$340454
03-ERD-033	Scalable Discretization-Enhanced Solvers	\$429217
03-ERD-038	An Agent that Can Prohibit Microbial Development and Infection	\$238937
03-ERD-039	Thermally Driven Processes and the Atmospheric Transport and Dispersion of Stable Macroparticles	\$351977
03-ERD-040	Photochromic Radiation Dosimetry	\$332280
03-ERD-042	Predicting the Effects of Climate Change and Variability on Water Availability	\$699758
03-ERD-044	Colliding Nanometer Beams	\$389974
03-ERD-048	Long-Range, Passive Detection of Fissile Material	\$65643
03-ERD-049	Identifying Gene-Regulation Mechanisms using Rule-Based Classifiers	\$49986
03-ERD-050	Carbon-Nanotube Permeable Membranes	\$360523
03-ERD-051	Development of a "Virtual Crystallizer"	\$740075
03-ERD-059	Large-Aperture Diffraction Gratings: The Enabling Technology for High-Energy Petawatt Lasers	\$418012
03-ERD-060	Molecular Engineering of Electrodialysis Membranes	\$894674
03-ERD-061	Parallel Graph Algorithms for Complex Networks	\$418246
03-ERD-062	Microbial Pathways	\$678077

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
03-ERD-063	Protein Model Database	\$409879
03-ERD-064	A Two-Particle Formulation of Electronic Structure	\$177765
03-ERD-065	Environmental Transport and Fate of Endocrine Disruptors From Non-Potable Reuse of Municipal Wastewater	\$283210
03-ERD-067	Nitrate Biogeochemistry and Reactive Transport in California Groundwater	\$958489
03-ERD-068	The Instrumented Cell	\$952319
03-ERD-070	Laser-Matter Interactions with a 527-Nanometer Drive	\$1223339
03-ERD-071	Optics Performance at 1 omega, 2 omega, and 3 omega	\$1029576
03-ERD-072	Characterization and Optimization of High-Energy K-Alpha X-Ray Sources	\$242283
03-ERD-073	A Compact Accelerator for Proton Therapy	\$311978
03-ERD-074	Novel Methods for Bonding Disparate Materials	\$312384
03-ERD-076	Persistent Monitoring Platforms	\$405643
03-ERD-077	Plutonium and Quantum Criticality	\$1077899
03-ERI-001	Tectonic Morphochronology of the Southern San Andreas Fault System	\$239220
03-ERI-002	A Next-Generation Microlensing Survey of the Large Magellanic Cloud	\$90680
03-ERI-003	A Computational Design Tool for Microdevices and Components used in Pathogen Detection Systems	\$277520
03-ERI-004	Elucidation of the Mechanism of Gene Silencing using Small Interfering RNA: DNA Hybrid Molecules	\$75213
03-ERI-005	Cellular Response to Heat Stress: System Stability and Epigenetic Mechanisms	\$62434
03-ERI-007	Development of Sample Handling and Analytical Expertise for the Stardust Comet Sample Return Mission	\$356259
03-ERI-009	Force Spectroscopy to Study Multivalent Binding in Protein-Antibody Interactions	\$84786
03-ERI-010	Intracellular Chemical Measurements: A Generalized Approach with High-Spatial Resolution using Functionalized Nanoparticles	\$82549
03-ERI-011	Single Molecule Techniques for the Study of Chromatin Assembly and Remodeling	\$85057
03-ERI-012	Using Femtosecond Laser Subcellular Surgery as a Tool to Study Cell Biology	\$85068
03-FS-010	Silicon Nanocrystal Laser	\$26650
03-FS-030	Diode Laser Phase Conjugation	\$60138
03-LW-001	A High-Efficiency Grazing Incidence Pumped X-Ray Laser	\$167327

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
03-LW-005	Space-Time Secure Communications for Hostile Environments	\$208766
03-LW-017	Mutations That Cause Human Disease: A Computational-Experimental Approach	\$191192
03-LW-024	Diode-Pumped Alkali Atom Lasers	\$239931
03-LW-027	Long-Time-Scale Atomistic Simulations	\$184646
03-LW-040	Broadband Optical Parametric Amplification in Microstructured Devices	\$172930
03-LW-047	Laser-Initiated Nanoscale Molecularly Imprinted Polymers	\$194008
03-LW-056	Coherent Anti-Stokes Raman Microscopy: Specific Molecular In-Vivo Imaging at Superresolution without Fluorescence Labels	\$73394
03-LW-059	A Novel Antimatter Detector with Application to Dark Matter Searches	\$237201
03-SI-001	Biological and Synthetic Nanostructures Controlled at the Atomistic Level	\$1568312
03-SI-003	ICE: The Image Content Engine	\$1948550
03-SI-004	Advancing the Technology of Tabletop, Mesoscale Nondestructive Characterization	\$606808
03-SI-005	Pathomics	\$3884363
04-ERD-001	DNAPL Dissolution in Porous Media: Multiscale Effects of Multicomponent Dissolution Kinetics on Cleanup Time	\$238265
04-ERD-002	Multiprobe Investigation of Proteomic Structure of Pathogens	\$476993
04-ERD-004	Three-Dimensional Vectorial Time-Domain Computational Photonics	\$299741
04-ERD-005	Infrared Diagnostics for Dynamic Events	\$340997
04-ERD-007	Dynamic Combinatorial Libraries for Target-Driven Ligand Development	\$362845
04-ERD-010	Time-Resolved Dynamic Studies using Short-Pulse X-Ray Radiation	\$442100
04-ERD-012	Locally Adaptive Mesh Refinement for Linear Scaling Electronic Structure Calculations	\$330054
04-ERD-013	Acoustic Characterization of Mesoscale Objects	\$370858
04-ERD-014	Low-Voltage, High-Precision Spatial Light Modulator	\$226818
04-ERD-017	Broadband Radiation and Scattering	\$263905
04-ERD-019	Development of Absolute Spectroscopic Diagnostics for Nonlocal-Thermodynamic-Equilibrium Plasmas	\$230437
04-ERD-020	Electronic Transitions and Phonons in f-Band Metals at High Pressures	\$268771
04-ERD-021	High-Strain-Rate Deformation of Nanocrystalline Metals	\$348698

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Project ID	Project Name	FY Total
04-ERD-022	Designer Nanocellular Materials for Laser Targets	\$498906
04-ERD-023	Short-Pulse Laser Absorption and Energy Partition at Relativistic Laser Intensities	\$447306
04-ERD-024	XChem	\$257229
04-ERD-025	Ultrafast Transient Recording Enhancements for Optical-Streak Cameras	\$508919
04-ERD-026	Fission Fragment Sputtering	\$159676
04-ERD-027	Magnetic Dynamos and Stars	\$237190
04-ERD-028	The Creation of a Neutron Star Atmosphere	\$381894
04-ERD-030	Electronic Polymerase Chain Reaction	\$153012
04-ERD-032	New Generation X-Ray Optics: Focusing Hard X Rays	\$416328
04-ERD-033	Nanosecond Ultrasonics to Study Phase Transitions in Solid and Liquid Systems at High Pressure and Temperature	\$427206
04-ERD-036	Multiscale Characterization of Body-Centered-Cubic Crystals Deformed to Large Extents of Strain	\$399797
04-ERD-037	Dynamic Data-Driven Event Reconstruction for Atmospheric Releases	\$872314
04-ERD-038	Nonlinear Free-Electron Light Sources	\$400174
04-ERD-039	Bioforensics: Attribution of Biological Weapons Agents by NanoSIMS	\$221028
04-ERD-040	Developing New Tools for In-Vivo Generation and Screening of Cyclic Peptide Libraries	\$385744
04-ERD-042	Modeling the Production of Beta-Delayed Gamma Rays for the Detection of Special Nuclear Materials	\$203731
04-ERD-043	Nanomechanics: Strength and Structure for Nanotechnology	\$205580
04-ERD-046	Coupling Micromechanics and Reactive Fluid Flow in Fracture Networks	\$171807
04-ERD-047	Exfiltration Interdiction Algorithm Development	\$179705
04-ERD-048	High-Average-Power, High-Energy, Short-Pulse Fiber Laser System	\$299641
04-ERD-051	Advancing Climate and Carbon Simulation	\$393177
04-ERD-052	A Coupled Computational and Experimental Approach to Determine Functions of Deeply Conserved "Anonymous" Human Genes	\$496744
04-ERD-053	Metal-Containing Organic and Carbon Aerogels for Hydrogen Storage	\$149441
04-ERD-054	Development and Application of a Predictive Computational Tool for Short-Pulse, High-Intensity Target Interactions	\$456248
04-ERD-057	Surrogate Nuclear Reactions and the Origin of the Heavy Elements	\$269536

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
04-ERD-058	Stellar Astrophysics and a Fundamental Description of Thermonuclear Reactions	\$224835
04-ERD-059	High-Energy-Density Galaxy Jets	\$282970
04-ERD-060	Carbon Sequestration and Transport in Natural Environments, the Role of Organic Carbon and Microbial Processes in the Ocean: Observations and Modeling	\$213194
04-ERD-064	High-Brightness, Laser-Driven, X-Ray Source for Nanoscale Metrology and Femtosecond Dynamics	\$295135
04-ERD-065	Creating the Core Conditions of Extrasolar and Solar Giant Planets in the Laboratory	\$271002
04-ERD-067	Resolution Boosting for Wide-Field and Compact-Snapshot Spectrographs	\$93381
04-ERD-068	Protein Classification Based on Analysis of Local Sequence-Structure Correspondence	\$319643
04-ERD-069	Ionization Chemistry of High-Temperature Molecular Fluids	\$450155
04-ERD-070	The Large Synoptic Survey Telescope and Foundations for Data Exploitation of Petabyte Data Sets	\$364385
04-ERD-071	Ultrafast, In-Situ Probing of Shocked Solids at the Mesoscale and Beyond: A New Paradigm for Materials Dynamics	\$1059768
04-ERD-074	Field Deployable DNA Analyzer	\$150001
04-ERD-075	Hydrogen Absorption in Fluids: An Unexplored Solution for Onboard Hydrogen Storage	\$119773
04-ERD-076	Molecular Radiation Biodosimetry	\$565727
04-ERD-079	Interaction of Viruses with Membranes and Soil Materials	\$134992
04-ERD-080	Quantifying Sea-Level Cosmogenic Neutron/Gamma Backgrounds and Their Effects on Large Volume Sea-Level Detectors	\$74635
04-ERD-082	High Fidelity Fluid Mechanical Model for the Early Time Prediction of Atmospheric Contaminant Clouds From Nuclear Explosions	\$79952
04-ERD-083	Development of Generalized Mapping Tools to Improve Implementation of Data-Driven Computer Simulations	\$111858
04-ERD-084	Characterizing the Regulatory Genome: Transcription Factor Proteins and Gene Regulation Networks in Living Cells	\$492451
04-ERD-085	Is the Island of Stability Centered at Z=114?	\$201659
04-ERD-086	Electro-Thermal-Mechanical Simulation Capability	\$140953
04-ERD-088	A New "Natural Neighbor" Meshless Method for Modeling Extreme Deformations and Failure	\$94720

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
04-ERD-089	High Resolution Aerosol Modeling: Decadal Changes in Radiative Forcing	\$59873
04-ERD-091	Contaminant Uptake and Demography of the Loggerhead Shrike (<i>Lanius Ludovicianus</i>) at the Lawrence Livermore National Laboratory Site 300	\$62675
04-ERD-093	An Integrated Laboratory for the Study of Interventional Device Dynamics	\$211900
04-ERD-095	Internet Ballistics: Supplanting Source IP as the Sole Arbiter of Internet Attribution	\$77638
04-ERD-097	Explosive Particle Imager for Standoff Detection	\$106328
04-ERD-099	Volume Radoptic Detectors	\$100420
04-ERD-101	Investigating the "Trojan Horse" of <i>Yersinia Pestis</i> Virulence	\$199382
04-ERD-102	Petascale Simulation Initiative	\$948909
04-ERD-103	De Novo Identification of Regulatory Regions in Intergenic Spaces of Prokaryotic Genomes	\$111901
04-ERD-104	TOF-SIMS Measurement of Metabolites From Single Cells	\$89390
04-ERD-105	NanoBIS Determination of the Unoccupied Electronic Structure of Pu	\$402314
04-ERD-106	Mapping Phonons at High-Pressure: Phase Transformation, Phase Stability and Elastic Anisotropy	\$109257
04-ERD-107	Nanomaterials for Radiation Detection	\$44180
04-ERD-108	Nonequilibrium Phase Transitions	\$28516
04-ERI-004	Mission to Very Early Earth	\$207649
04-ERI-009	Calcium Dynamics in Human Bone	\$228119
04-ERI-013	Iodine-129 Accelerator Mass Spectrometry for Earth Science, Biomedical, and National Security Applications	\$199390
04-ERI-014	Carbon Flux in a California Grassland Soil Sequence: The Role of Dissolved Organic Carbon in Carbon Sequestration	\$181518
04-ERI-015	Single-Cell Level Investigation of Cytoskeletal Response to External Stimuli	\$83426
04-FS-001	Development of a High-Stiffness Hybrid Passive/Active Magnetic Bearing for Precision Engineering Applications	\$67889
04-FS-004	Ion Mobility Spectrometry	\$60699
04-FS-006	Ceramic Lasers	\$50932
04-FS-007	A Bright Source of High-Energy X Rays	\$74199
04-FS-008	Simulation of Biochemical Pathway Adaptability using Evolutionary Algorithms	\$69881

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
04-FS-009	Development of a Chemoenzymatic-Like and Photoswitchable Method for the Ordered Attachment of Proteins to Surfaces	\$74955
04-FS-010	Prototype Chip Fabrication for Electrochemical Pathogen Detection	\$74848
04-FS-011	Laser Pulse Compression by Stimulated Raman Scattering in a Plasma	\$38240
04-FS-014	Protein-Protein Interaction Mapping of the Human DNA Damage Response Pathway	\$70725
04-FS-015	Rapid Generation of a Nanocrystal-Labeled Peptide Library for Specific Identification of the Bacterium Clostridium Botulinum	\$74834
04-FS-016	Demonstration of Silicon Nanocrystalline Lasers and Amplifiers	\$42892
04-FS-017	Detecting, Locating, and Characterizing Remote Power Sources	\$73832
04-FS-018	Direct Probing of Protein-Protein Interactions	\$74712
04-FS-019	The Innermost Inner Core: Fact Or Artifact?	\$50388
04-FS-020	Small Sample Heat Capacity Under High Pressure	\$47592
04-FS-021	Cell-Type-Specific Genome-Wide Expression Profiling After Laser Capture Microdissection of Living Tissue	\$72417
04-FS-023	Feasibility of Space-Based Seismometry Utilizing a Satellite-Borne Real Aperture Radar	\$49036
04-FS-029	Constraints on Strong Earthquake Ground Motion From Nuclear Explosion Data	\$36138
04-FS-031	Geophysics Experiments on High-Powered Lasers	\$40645
04-FS-032	Two-Phase Noble Liquid-Gas Detectors for Detection of Coherent Elastic Neutrino Scattering	\$45728
04-FS-034	Microfluidic Liquid Cell for Molecular Imaging in Aqueous Phase Using Atomic Force Microscopy	\$41412
04-LW-008	Biomechanics of Spinal Fracture	\$150298
04-LW-017	Development of Insulating Liquids for Detecting and Imaging of Low-Energy Particles	\$138538
04-LW-020	Relativistic Antimatter Plasmas Created by Ultra-Intense Lasers	\$175479
04-LW-031	Generation and Advanced Diagnosis of Femtosecond, High-Brightness Electron Beams	\$156065
04-LW-036	Fractality of Fracture Surfaces in Polycrystalline Materials	\$128548
04-LW-048	Understanding the Mechanism of Human P450 CYP1A2 using Coupled Quantum-Classical Simulations in a Dynamical Environment	\$157386

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
04-LW-049	Investigation of AAA+ Protein Machines That Participate in DNA Replication, Recombination, and Response to DNA Damage	\$177315
04-LW-054	New-Shape Memory Polymers for Actuators	\$164032
04-LW-062	Renewable Reflective Optics Based on Thermolelastic Effects: Concept and Design Equations	\$57966
04-LW-065	Application of Light-Emitting Polymers to Detect Pathogen DNA in Blood	\$189579
04-LW-069	A Single Molecule Study of the Movement of a DNA Sliding Clamp	\$189884
04-LW-077	Constraints on the Nature of Terrestrial Core-Forming Melts: Ultrahigh-Pressure Transport Property Measurements and X-Ray Computed Tomography	\$173856
04-SI-003	Kinetic Simulation of Boundary-Plasma Turbulent Transport	\$1021207
Total # of Projects for LLNL:	220	Total Cost for LLNL: \$68985350 *

*Does not include \$811,354 of administrative and related implementation costs.

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NTS - Nevada Test Site

Project ID	Project Name	FY Total
H1701024	Bessel Probe	\$18596
H1701043	Framing Tube Design & Fabrication	\$18821
H1701044	High Speed 8 Channel Micro Digitizer	\$133509
H1701064	Raman Velocimetry Diagnostic	\$14909
H1701074	Laser Multi pulsed X Ray Generator	\$163298
H1701084	Digital Streak Camera	\$140237
H1701094	XML for Instrumentation	\$125480
H1701134	Compact Modular Marx for a Portable Flash X Ray Source	\$29882
H1701144	1 Gigasample Per Second Remote Digitizer	\$56810
H1701154	Development of a Multichannel Velocity Interferometer Optical Dome	\$54318
H1701164	Digital Framing Camera	\$111923
H1702014	40mm Image Converter	\$186611
H1702034	Picosecond Avalanche Pulsers	\$107208
H1702044	Capacitive Divider	\$29491
H1702073	Low Energy X Ray Radiographic Sources	\$1118
H1702104	High-Power Pulser	\$96070
H1702124	Low Voltage High Speed Streak Tube	\$36644
H1702134	Streak Camera Micro controller system	\$193311
H1702184	Ultrahigh Speed Long Data Length Transient Recorder	\$68160
H1703013	Tailored Neutron Source	\$23946
H1703014	MARXT Test Stand	\$69687
H1703033	Particle Discriminating Activation Detector	\$29654
H1703054	Two Bank DPFA	\$367074
H1703064	Associated particle neutron calibration facility	\$117145
H1703094	High Volume Anode (Optimized Geometry HOT tube)	\$87719
H1703104	High Output Tube	\$132269
H1703114	Sum Peak Counting of Short Lived Activation Product	\$50661
H1703124	ZnS Based Neutron Spectrometer	\$81918
H1703134	Compact Fabry Perot Development	\$196831

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NTS - Nevada Test Site

Project ID	Project Name	FY Total
H1704014	Study of LaBr3 as a high resolution room temperature spectroscopy	\$51710
H1704023	Real Time Photogrammatic Map	\$20341
H1704114	Evaluation of Region of Interest Based Search using an HPGe Detector	\$13469
H1704194	Temperature Measurement of Thermal Hot Spots Using SWIR Channels	\$46982
H1704203	Li6(Ce) Glass Fiber Detectors	\$7757
H1704214	Micro-machine distributed detectors	\$77738
H1704234	Micro Portal Radiation Monitor	\$46126
H1704244	MCNP Phantom Library	\$82694
H1704264	Application of Direction Detection Techniques to Generic Detectors	\$28733
H1704304	Dual Temperature Emissivity Study	\$3705
H1704353	RF Detection of High Explosive Materials	\$22703
H1704374	Portable long standoff antenna for communications and detection system applications	\$77301
H1704414	Micro machine distributed detectors	\$54625
H1704454	Design parameter Optimization of a 2D Gamma neutron Detector	\$29763
H1704504	LiDAR Experiment for City Models	\$113771
H1704514	One Path Photogrammetric Program for a Digital Frame Camera	\$143922
H1704554	Large Area Neutron Detector	\$76179
H1704584	An Investigation of Data Compression and Satellite Transmission Techniques for Aerial Measurement	\$85592
H1705014	Micro machine distributed detectors	\$168009
H1705024	Optical Diagnostics for Phase Changes in Metals	\$132090
H1705034	Covariance Mapping	\$8023
H1705044	Compact Penning Mass Spectrometer	\$73540
H1705064	Solid State Ultraviolet Laser Diode	\$86100
H1705074	Holographic visualization of dynamic processes	\$81363
H1705154	Fast GC Chemical Biological (CB) Evaluations	\$80837
H1705184	Lithium Niobate Terahertz Generator	\$253636
H1705234	Ultra Low Power High Voltage Power Supply	\$105805
H1705254	Flexible Short range Communications Network	\$62460

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NTS - Nevada Test Site			
Project ID	Project Name		FY Total
H1705264	Bone Dry		\$87623
H1705273	Handheld direct Thermal Imager		\$29700
H1705284	Pulsed Nd YAG Ring Laser		\$62866
H1705294	Fourier Transform IR Improvements		\$39615
H1705304	Cathodoluminescence and SEM EDS Analysis of Fissionable Dust Particles for Nuclear Nonproliferation and Environmental Assessment		\$67859
Total # of Projects for NTS:	62	Total Cost for NTS:	\$5065937 *

*Does not include \$413,270 of administrative and related implementation costs.

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ORNL - Oak Ridge National Lab

Project ID	Project Name	FY Total
3210-2057	Nanoelectronic Devices Made from Doped Nanofibers	\$14926
3210-2065	Novel Platinum Support for Proton-Exchange-Membrane Fuel-Cell Cathode and Anode Active Layer	\$29632
3210-2067	Nanocrystalline Giant Magnetostrictive Materials for Microactuator Applications	\$59952
3210-2069	Development of a New High-Temperature Proton-Electron Mixed Conductor for Hydrogen Separation	\$18851
3210-2074	Selective Area Chemical Vapor Deposition of Carbon Nanotube Films Using Seeded Molecular Beams	\$59989
3210-2076	Permeable Environmental Leaching Capsules for Nondestructive In Situ Evaluation of Contaminant-Immobilization Techniques in Soil	\$38994
3210-2077	High-Tc Silicon-Compatible Ferromagnetic Semiconductors	\$32051
3210-2078	Development of Readout Electronics Architecture for a Silicon-Strip Vertex Detector Upgrade to the PHENIX Experiment	\$31987
3210-2079	Controlling Size and Function of Metal Oxide Nanoparticles: Coupling Micellar Nanoreactor Synthesis and Hydrothermal Processing	\$41446
3210-2081	An Innovative Technique for Bimaterial Interface Toughness Research	\$79682
3210-2083	Nanoporous Inorganic Membranes for High Selectivity Hydrogen Separations	\$34385
3210-2084	High-Aspect-Ratio Carbon Nanofiber Probes for Scanning Probe Microscopy	\$59562
3210-2085	Construction of a Gene-Prediction Algorithm in Populus: Adding a New Dimension to Complex Biology	\$58873
3210-2087	In Situ Studies of Hydrogen Storage Materials Using Neutron Scattering	\$98451
3210-2088	Toward Neutron Star Merger Simulations: Gravitational Waves, Heavy Element Nucleosynthesis, and Gamma-Ray Bursts	\$74196
3210-2091	Development of a Three-Dimensional Radioisotope Depletion Method Using Monte Carlo Transport	\$62895
3210-2092	Zero-Loss Fiber Optic Splitter	\$69954
3210-2093	Alanates for High-Capacity Hydrogen Storage	\$90141
3210-2094	The Global Optimization Problem for Remote Sensing: A Guaranteed Efficient Solution	\$95000
3210-2095	High-Speed Decay Lifetime Analysis Using Field-Programmable Gate Arrays	\$2132
3210-2096	Sounds of Rapids as an Attractant for Migratory Fish	\$60239
3210-2099	High Effective Hydrogen Storage Density	\$112244

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ORNL - Oak Ridge National Lab

Project ID	Project Name	FY Total
3210-2100	Metallic Nanofuels for Vehicles	\$52458
3210-2101	Enhancing Storage of Hydrogen-Storage Materials Through Nanoscale Design	\$40517
3210-2102	Development of a Novel Method for Rapid Cellular Material Extraction and Separation in Air	\$88635
3210-2103	Advanced Diagnostics Algorithm for Cancer Detection Using Hyperspectral Fluorescence Imaging	\$84750
3210-2104	Development of Novel Technology to Synchronize Pulsed, Broad-Area, Semiconductor Lasers	\$124993
3210-2105	A Short Cut to Making Mouse Models for Stressor Resistance for Application to Longevity (Aging) and Other Exposure-Biology Research	\$74949
3210-2106	Development of a Preamplifier for an Imaging Gamma-Ray Detector	\$64599
3210-2107	Selectively Enhanced Adatom Diffusion	\$66929
3210-2108	Biocatalytic Desaturation and Oxidation: A Technology with Multiple Applications	\$72971
3210-2109	Environmental Isotope Forensics of Perchlorate Contamination	\$109928
3210-2110	Superionic Electrolyte-Based Fuel Cell Concept for Portable Multifuel Power Sources	\$124743
3210-2111	Super-Hydrophobic Nanopost Glass	\$164744
3210-2112	Hydrogen Production from Naturally Occurring Iron Silicates	\$80043
3210-2113	Cyclopentadienyl Iron Clusters as Nanoscale Building Blocks for Multi-Electron Electrocatalysis	\$87946
3210-2114	Development of a Position-Sensitive Neutron Detector for Use at the High Flux Source Facilities: SNS and HFIR	\$71855
3210-2115	Development of the "Ultimate" Scanning Tunneling Microscope for the Center for Nanophase Materials Science	\$82977
3210-2116	Real Space Imaging of High Frequency Transport on the Nanoscale	\$67857
3210-2117	Novel, Tunable, Ultrafast, Nonlinear Optical Switching	\$49890
3210-2118	Development of a High-Throughput, Laser-Based Technique for Quantifying the Elemental Composition of Wood: Applications in the Forest Products Industry	\$42268
3210-2119	Optically Manipulated Microelectronics Artificial Retina	\$49918
3210-2120	Mesosopic Fluidic-Based Actuators	\$93898
3210-2121	Creation of Switchable Photosystem II Designer Alga for Hydrogen Production	\$22413

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ORNL - Oak Ridge National Lab

Project ID	Project Name	FY Total
3210-2122	Development of a Multimode and Multispectral Automated Mueller Matrix Polarization Imaging System of Noninvasive Detection and Diagnosis of Skin Cancer	\$62554
3210-2123	Design and Synthesis of Oriented Guest-Host Nanostructures for Enhanced Membrane Performance	\$48470
3210-2124	A Hybrid Solid-State Process for Joining High-Temperature Materials	\$49927
3210-2125	Alkali Silicate and Related Glasses and Novel Hydrogen Storage Materials	\$59809
3210-2126	Development of an Innovative Triboluminescence Approach for Low- and Hypervelocity Impact Damage Sensing	\$19777
3210-2127	An Energy Efficient Method for Semi-Solid Material Processing	\$65772
3210-2128	Using Live-Cell Imaging Technologies to Probe Molecular Interactions Between Bacterial Cells and Heavy Metals	\$20362
3210-2129	Development of a Rich-Air/Fuel-Ratio Sensor Correction System	\$19623
3210-2130	An Image-Based Method for Screening and Diagnosis of Blinding Eye Disease	\$37953
3210-2131	Direct Band Gap Semiconductors on Silicon for Solid State Lighting: Silicon-Based, Blue-Light Emitting Diodes	\$79096
3210-2132	Biaxial Flexure Tests of Multilayers	\$19814
3210-2133	Development of New Nanoparticle-Strengthened Ferritic and Martensitic Steels by Thermomechanical Treatment	\$17568
3210-2134	Minimum Required Migration Distances--A New Tool for Estimating Climate Change Impacts	\$19962
3210-2135	Novel Technologies for Wide-Scale Production of Magnesium and Hydrogen	\$60125
3210-2136	Measurement of Species Distributions in Operating Fuel Cells	\$19972
3211-2035	Enhanced Performance and Energy Savings Through Ultrahigh Magnetic Field Processing of Ferromagnetic Materials	\$99946
3211-2045	Detector Development for Fundamental Neutron Physics at the Spallation Neutron Source	\$236323
3211-2046	Three-Dimensional Neutron Structural Microscopy: Design and Demonstration	\$14848
3211-2057	Neutron-Rich Radioactive Ion Beam Production with High-Power Electron Beams	\$139639
3211-2058	Scaling Climate Models for Future Computer Architectures	\$318618
3211-2059	Advanced Computational Methods	\$325756
3211-2060	Genomic Characterization of Belowground Ecosystem Responses to Climate Change	\$293771

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ORNL - Oak Ridge National Lab

Project ID	Project Name	FY Total
3211-2061	Self-Organizing Polymers as Biomaterials	\$236305
3211-2062	Materials Science of Nanostructured Carbons and Graphites	\$243097
3211-2063	Aberration-Corrected, Ultrahigh-Resolution Electron Microscopy for Atomic-Level Characterization of the Structure and Chemistry of Nanophase Materials	\$239560
3211-2064	Biologically Driven Controlled Synthesis and Directed Assembly of Nanophase Inorganic Materials	\$273719
3211-2065	Creating New Climate Drivers and Interactions in Global Climate Models	\$300305
3211-2066	Biomolecular "Locks and Keys:" High-Performance Computing for Investigation of Recognition Principles in the Complexes of Biological Macromolecules	\$228736
3211-2067	Toward Common Components for Computational Nanoscience	\$249972
3211-2068	Comprehensive Molecular Probing of Live Biological Cells	\$149999
3211-2070	Zero-Net Power, Low-Cost Sensor Platform	\$260555
3211-2071	Intelligent Consequence Management for Energy Assurance	\$204962
3211-2072	Breakthrough Multi-Megawatt Space Reactor Power System Design	\$294305
3211-2073	Distributed Intrusion Detection and Attack Containment for Organizational Cyber Security	\$219575
3211-2074	Image to Intelligence Archive: Intelligent Agent-Based, Large-Scale, Spatial-Data Management and Analysis	\$306440
3211-2075	Advanced Ion Trap Mass Spectrometry for the Rapid and Confident Identification of Biological Agents	\$300988
3211-2076	NEUTROMEAS: A Pixel Detector for Neutron Imaging	\$239604
3211-2077	Nanoscale Control of Collective Phenomena Using Artificially Structured Materials	\$44934
3211-2079	Materials Needs for Successful Implementation of Lean NOX Treatment Technology	\$149858
3211-2080	Production of Hydrogen Using Nuclear Energy and Inorganic Membranes	\$249981
3211-2081	Probing Explosive Nucleosynthesis Through Measurements at the Holifield Radioactive Ion Beam Facility	\$147536
3211-2082	Nano/Micro Systems for Advanced Neuronal Interfacing	\$199848
3211-2083	Nanorods for Energy and Photonics	\$218651
3211-2084	A Revolutionary Infrared Nanoscale Processing Approach	\$191393

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ORNL - Oak Ridge National Lab

Project ID	Project Name	FY Total
3211-2085	Artificial Cellular Receptors: Interfacing Nanostructured Hard and Soft Materials	\$263376
3211-2086	Profiling Spin Injection at the Atomic Scale	\$229918
3211-2087	Comprehensive Fusion Simulation: Component-Based Software Engineering and Evolutionary Time Advancement	\$369704
3211-2088	Bringing Statistical Visualization to the Terascale and Beyond: Visual Analysis in Full Context	\$249595
3211-2089	Nanochemistry: The Bridge from Materials to Biological Sciences	\$250052
3211-2090	Characterizing the Complex Metaproteomes of Microbial Communities	\$147745
3211-2091	Comprehensive Analysis of Microbial Proteomes Using Signature Peptides	\$174899
3211-2092	Building ORNL's Capabilities for Genome-Scale Quantitative Measurements of Protein Complexes	\$193637
3211-2093	Exploring New Methodologies in Detecting Low Abundance Protein Complexes	\$240637
3211-2094	Flameless Combustion Engines in the Transition to Hydrogen	\$226808
3211-2095	Assuring the Communications Infrastructure for the Electric Grid of the Future	\$247193
3211-2096	Boron-Nitrogen Polymers/Boron Nitride System For Hydrogen Storage	\$59335
3211-2097	Advanced Processes for Nuclear Fuel Microspheres	\$258449
3211-2098	Genetic Variability in Host Responses to Bioterror Agents	\$238113
3211-2099	Complex Oxides with Frustrated Orbital Ordering	\$199850
3211-2100	H- Laser Stripping Proof-of-Principle Experiment for the Spallation Neutron Source Power Upgrade Proposal	\$307049
3211-2101	Development of In-Situ Neutron Diffraction Capabilities for Studies of Deformation and Fracture Behavior under Hydrogen-Rich Environments	\$198708
3211-2102	Quantum Circuit Modeling for Nanoelectronics	\$197650
3211-2103	High-Throughput Biological Data Analysis and Modeling Tools for Genomes to Life Facilities	\$175042
3211-2104	Cross-Cutting Data and Tools Infrastructure for Genomes to Life Facilities	\$197438
3211-2105	Exploratory Computational Biology for Genomes to Life Facility III	\$199922
3211-2106	Characterization of Spin Structure and Spin Dynamics of Nanostructure Assemblies Using In-Field Scanning Electron Microscopy with Polarization Analysis	\$11998
3211-2109	Information Analysis and Fusion for Threat-Vulnerability Analysis	\$100000
3211-2110	Advanced Plasmonic Sensor Array for Homeland Security	\$99587

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ORNL - Oak Ridge National Lab

Project ID	Project Name	FY Total
3211-2111	A Neutron Science Portal Infrastructure to Facilitate Remote Access to Spallation Neutron Source Data and Computation	\$199971
3211-2112	Photonic Bandgap Crystal Sensor	\$71745
3211-2113	Redefining ORNL's Suite of Protein Analysis Technologies by Adding Flexibility, Analytical Capacity, and Biological Utility	\$52497
3211-2114	Research and Development for Neutron Structural Biology and Soft-Matter Science	\$146384
Total # of Projects for ORNL:	116	Total Cost for ORNL: \$15232173*

*Does not include \$86,295 of administrative and related implementation costs.

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PNNL - Pacific Northwest National Lab

Project ID	Project Name	FY Total
PN02001/1589	A Protein Functional Analysis Platform for Information Integration	\$149681
PN02002/1590	Actinide Coordination Chemistry for Advanced Separations Technology	\$81678
PN02004/1592	Advanced Meteorological Modeling for Applied Dispersion Models	\$29998
PN02005/1593	Advanced Simulation Software for Subsurface Science	\$240412
PN02013/1601	Characterization of Shewanella oneidensis MR-1 Genes Involved in Environmental and Cell-Cell Sensing	\$270452
PN02015/1603	Computational Cell Environment	\$271827
PN02016/1604	Design and Simulation of the Future Integrated Energy System	\$200763
PN02021/1609	Development of Damage and Optimization Tools for the Design of Short-Fiber Thermoplastic Hybrid Composite Structures	\$225578
PN02022/1610	Development of Data Mining Capabilities for Proteome-Wide Analyses	\$180052
PN02033/1621	Filamentous Fungal Genetics	\$198864
PN02035/1623	Disposal of CO2 in Sedimentary Formations	\$186815
PN02039/1627	Kinetic Simulations and Network Analysis: The EGF Receptor Signaling Network	\$138049
PN02044/1632	Nondestructive Characterization of Life-Limiting Degradation of Nuclear Power Plants	\$53758
PN02051/1639	Proteomics of Morphology Determination in a Fungus	\$27790
PN02053/1641	Quantum Calculations for Systems With 104-105 Atoms: Application to Nano-Materials and Biochemical Reactivity	\$118910
PN02062/1650	Simulation Methodology Development for an Energy Transmission and Distribution System	\$47887
PN02063/1651	Single Chain Monoclonal Antibodies (scFv): A Versatile Source of Antigen Specific Reagents	\$199734
PN02064/1652	Single-Molecule Approach for Understanding EGF Receptor Interactions	\$253419
PN02069/1657	Synthesis Techniques and Characterization of Nanostructured Organic-Inorganic Hybrid Systems	\$188842
PN02075/1663	Yttrium-90 Fibrin Composites for Treating Minimum Residual Disease	\$70283
PN03002/1665	A Scalable Architecture for Content-Based Information Discovery	\$119927
PN03003/1666	Adaptive Data Integration Middleware for Dynamic Information Discovery	\$129380

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PNNL - Pacific Northwest National Lab

Project ID	Project Name	FY Total
PN03004/1667	Advanced Information Analysis and Processing	\$129335
PN03005/1668	Advanced Radiochemical Analyses	\$165091
PN03007/1670	Affinity Reagents for Surface Functionalization	\$91208
PN03012/1675	Brazing Techniques for Dense High Fired Alumina Ceramics	\$49746
PN03014/1677	Climate-Change Chemistry of Atmospheric Particles	\$79957
PN03015/1678	Communications Analysis	\$46397
PN03017/1680	Concept-Based Document Analysis: Human-Centered Information Discovery	\$102847
PN03018/1681	Cooperative Multi-Agent System for Data Mining and Fusion	\$109980
PN03019/1682	Data Anomaly and Signature Detection with Associated Data Utility Development	\$74388
PN03020/1683	DC-STREAMS: Detecting Change in Continuous, Time-Varying Data Streams	\$49999
PN03021/1684	Detection of Chemical Signatures in Rivers and Coastal Environments Using Bivalves	\$108159
PN03024/1687	Development of a Salmonid Based DNA Microarray for Toxicological Testing of Environmental Contaminants	\$145026
PN03026/1689	DNA Microarrays for Monitoring Chemically-Induced Stress in <i>Chironomus tentans</i>	\$67806
PN03028/1691	Electrode Structures for High Pressure Xenon Detectors	\$65811
PN03029/1692	Electronic Structure of Organic Light Emitting Diode Materials	\$89815
PN03030/1693	Elucidating Cell Signaling Networks in <i>Shewanella Oneidensis</i> MR-1	\$170448
PN03034/1697	Framework for Climate Modeling Using Superparameterization Techniques	\$242834
PN03037/1700	Heuristic Entity Relationship Building Environment	\$242876
PN03039/1702	Highly Selective Monolayer Sorbents for Advanced Analytical Applications	\$218897
PN03040/1703	High-Speed Three-Dimensional Visualization of Intercellular and Intracellular Signal Transduction in Complex Cell Structures	\$268489
PN03042/1705	Hydrogen Storage Concepts	\$98300
PN03043/1706	Identification and Analysis of Hidden Multi-Relational Links	\$49232
PN03044/1707	Implementation of Parallel Solver in Coupled Fluid, Energy, and Solute Transport Computer Code (CFEST)	\$46690
PN03045/1708	Imprinted Media for Highly Selective Separation of Explosives, Chemical Warfare Agents and Biological Warfare Surrogate Organisms	\$139120

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Project ID	Project Name	FY Total
PN03046/1709	In Situ Magnetic Resonance Investigations of Metabolism and Mass Transport in Biofilms	\$201968
PN03047/1710	In Situ Spatial Analysis of Expression in Bioreactor Granule Microbial Communities	\$154073
PN03048/1711	Influence of Gd and Sm Doping on Atomic and Ionic Transport Properties of Novel Nanostructured Ceria-Zirconia Multilayers	\$185889
PN03049/1712	Influence of Surface Thermodynamic Properties on Bacterial Transport in Variably Saturated Porous Media	\$26026
PN03052/1715	Knowledge Signatures for Integrated Information Management	\$188408
PN03053/1716	Life-Limiting Degradation Mechanisms in Current Light-Water and Advanced Concept Reactors	\$54985
PN03055/1718	Modeling Power Systems as Complex Adaptive Systems	\$200720
PN03056/1719	Multilayer Thin Film Separation Membranes	\$20020
PN03057/1720	Multiple Sensor Data Integration and Decision Analysis - Chemical Signature Detection	\$73741
PN03058/1721	Multiple Sensor Data Integration and Decision Analysis -- Nuclear Signature Detection	\$42045
PN03060/1723	Neutron Scattering to Determine Biomolecular Conformations on Biosensor Surfaces	\$48321
PN03063/1726	New Thin-Film Electroactive Materials for Enhanced Separations	\$70948
PN03067/1730	Novel Near-Infrared Laser Absorption Spectrometer Development	\$105548
PN03068/1731	On-line Measurement of Particulate Organics in Diesel Exhaust by Chemical Ionization Mass Spectrometry	\$89792
PN03070/1733	Organic Synthesis Using Plasma-Facilitated Catalysis	\$85102
PN03073/1736	Peptide Permutation and Protein Prediction	\$234615
PN03075/1738	Preconcentration of Organic Signatures Based on Carbon Nanotube Composites	\$185141
PN03078/1741	Real-Time Detection and Multidimensional Characterization of Single Air-Borne Microorganisms	\$105915
PN03079/1742	Regenerable Sorbents for Carbon Dioxide Capture Based on Functionalized Nanomaterials	\$208438
PN03081/1744	Scenario and Knowledge Framework for Analytical Modeling	\$255644

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Project ID	Project Name	FY Total
PN03082/1745	Sensor and Tracer Technology for Characterization of Ultra-Low CO2 Leakage Fluxes and Pathways	\$124957
PN03083/1746	Single Enzyme Nanoparticles on Nanostructured Matrices	\$240076
PN03085/1748	Sonoluminescence Following Acoustically Driven Bubble Collapse	\$123715
PN03086/1749	Stress-Activated Control Mechanisms Underlying Signal Transduction Networks	\$390346
PN03088/1751	Supercritical Fluid Extraction of Bacterial Spores and Analysis for Specific Biomarkers	\$91154
PN03089/1752	Surface Functionalization for Biorecognition	\$89687
PN03090/1753	Synthesis and Characterization of Novel Nanoporous Transition Metal Phosphates with Inherently High Anion Adsorption Properties	\$50949
PN03092/1755	Transcriptional Profiling of Microbial Syntrophic Systems	\$334795
PN03095/1758	Using High Frequency Pulsed Ultrasound at Sub-Cavitation Conditions as a Mechanism to Enhance Energy Efficiency and Selectivity in Heterogeneous Catalytic Chemistry	\$65975
PN03096/1759	Validation of scFv Antibodies for Identification of Protein Complexes	\$125660
PN04001/1760	A Toxicogenomic Approach for Quantitative Structural Activity Relationship Modeling.	\$27000
PN04002/1761	Active Disk For Proteomics	\$50002
PN04003/1762	Advanced Materials for Preconcentration and Sensing	\$122029
PN04004/1763	Aftertreatment Systems Effectiveness	\$94948
PN04005/1764	Aquatic Multisensor Measurement	\$199482
PN04006/1765	Array Technology for Quantification of Proteins	\$160755
PN04007/1766	Atomistic Modeling of Defects and Transport Processes in Oxides	\$69129
PN04008/1767	Background Characterization and Sensitivity Analysis for Detection of Threats to Marine and Freshwater Environments	\$79777
PN04009/1768	Biological Data Fusion and Visualization	\$138897
PN04010/1769	Biological Markers in Nasal Secretion: An Application of Proteomics for Human Health Risk Assessment	\$49924
PN04011/1770	Building-Wake Feasibility Study	\$14692
PN04012/1771	Chalcogenide Nanowire Synthesis, Mechanisms, and Applications	\$49990

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Project ID	Project Name	FY Total
PN04013/1772	Chemically and Mechanically Stable Bipolar Membranes for Electrodialytic Desalination	\$22994
PN04014/1773	Chemostat Research Using Filamentous Fungi	\$174976
PN04015/1774	Class-Based Atmospheric States Mapping	\$24945
PN04016/1775	Community Data Sharing and Collaboratories for Biological Sciences	\$74630
PN04017/1776	Complex Adaptive Transactive Systems: Design and Operation	\$90327
PN04018/1777	Concurrent Single-Program-Multiple-Data (SPMD) Tasking in Global Arrays and its Application to Electronic Structure Calculations on Systems with Thousands of Processors	\$223642
PN04019/1778	Conversion of Grain Lipid Components to Chemicals	\$45992
PN04020/1779	Coupled Proton-Electron Dynamics in Iron Containing Phyllosilicates: An Experimental and Theoretical Investigation Using Neutron Scattering	\$89873
PN04022/1781	Decontamination of Building Material Using Complexant-Modified Strippable Paint	\$49832
PN04023/1782	Design and Demonstration of Integrated Biologically Based Risk Modeling Framework	\$124970
PN04024/1783	Development of a Novel Approach for Imaging Inhaled Particulates	\$113506
PN04025/1784	Development of High-Throughput Global Metabolomics Approaches Based on Mass Spectrometry	\$160067
PN04026/1785	Development of Spatially Resolved Proton Transfer Reaction-Mass Spectrometry for Characterization of Hydrocarbon Distributions in Monolithic Catalysts and Microreactors	\$69999
PN04027/1786	Ecological Sensors Using Enzymes Immobilized in Functionalized Nanoporous Silica Chips	\$81691
PN04028/1787	Electronically Excited States in Amorphous Solid Water	\$94975
PN04029/1788	Establishing a Direct Link between Aerosol Chemical Properties and Clear Sky Aerosol Radiative Forcing	\$74081
PN04030/1789	Evaluation of Engineered Vadose Zone Bioremediation vs. Natural Attenuation	\$50015
PN04031/1790	Fast, Two-Dimensional Gas-Phase Separations for Ultrahigh-Throughput Global Analyses	\$99959
PN04032/1791	Identification of Particles by Surface-Enhanced Raman Scattering Spectroscopy	\$23047
PN04033/1792	Information Fusion for Structured Guided Analyses	\$281753
PN04034/1793	Integrated Data Structures for Mapping Cellular Networks	\$356613

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Project ID	Project Name	FY Total
PN04035/1794	Integrated Demonstrations of Threat Detection and Early Warning Systems	\$328329
PN04036/1795	Integrated Multimedia Modeling	\$47317
PN04037/1796	Kinetics of Carbonate Mineralization Using In Situ X-Ray Diffraction	\$44949
PN04038/1797	Knowledge Management for Intelligence Analysis	\$56827
PN04039/1798	Maritime Microlayer Sampler: Radionuclide Identification and Quantification	\$73627
PN04040/1799	Mechanisms of Regulated Ligand Shedding	\$218357
PN04041/1800	Medium Curie Saltcake-Fractional Crystallization with Displacement Washing for Hanford Tank Waste Supplemental Pretreatment	\$46832
PN04042/1801	Microcantilever-Based Sensing	\$97289
PN04043/1802	Modeling Indirect Aerosol Effect on Cloud Scale	\$65042
PN04044/1803	Nanoparticle-Enhanced Pathogen Detection	\$68540
PN04045/1804	Nanophase Materials and Catalysts for Hydrogen Storage	\$259497
PN04046/1805	Natural Fiber Surface Modification	\$34803
PN04047/1806	Network Inference Testbed	\$100522
PN04048/1807	Next-Generation Chemistry-Aerosol-Meteorology Model for Addressing Climate Change and Air Quality Interactions	\$249827
PN04049/1808	Novel Structured Monolith Reactors for Gas-Liquid-Solid Reactions	\$35069
PN04050/1809	On-Demand Neutron Source	\$14469
PN04051/1810	Projection Methods for Multiscale Modeling of Materials	\$45323
PN04052/1811	Protein Cross-Linking in Solid State Designated for Identification and Characterization of Intact Protein Complexes	\$144972
PN04053/1812	Proteome and Bioenergetic Analysis of Growth States in a Syntrophic Co-Culture	\$265347
PN04054/1813	Proteomics of Filamentous Fungi	\$184802
PN04055/1814	Proteomics of Membrane Protein Complexes: Relating Calcium Signaling and Oxidative Stress	\$196373
PN04056/1815	Quantifying Uncertainty in Complex Scientific Simulations Using Iterative, Adaptive Response Modeling (Beyond Monte Carlo)	\$251454
PN04057/1816	Research into the Causes of Independent Component Analysis Selectivity	\$90428

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PNNL - Pacific Northwest National Lab

Project ID	Project Name	FY Total
PN04058/1817	Saliva as a Non-Invasive Biomonitoring Matrix for Determination of Exposure to Chemical and Biological Agents	\$118784
PN04059/1818	Selective Inhibition of Gene Function in Cells	\$156282
PN04060/1819	Small Metabolite Imaging	\$131442
PN04061/1820	Spatial and Temporal Characterizations of Single-Enzyme Catalysis Under Nanoscale Confinements	\$219669
PN04062/1821	Statistically Rigorous Quality Control for Proteome Analysis	\$139386
PN04063/1822	Stimulus Controlled Catalysis	\$99989
PN04064/1823	Structural Characterization of Molecular Machines	\$79644
PN04065/1824	Synchrotron X-ray Spectroscopy of Novel Organic Diphosphine Light-Emitting Materials	\$79932
PN04066/1825	Synthesis and Characterization of Novel Oxides for Spintronics and Catalysis	\$114821
PN04067/1826	Template Synthesis of Highly Nanocrystalline SiC with High Surface Area	\$89735
PN04068/1827	Toxicoproteomics-Based Core Analytic Capability for Chemical Toxicology and Environmental Sentinel Studies	\$200922
PN04069/1828	Transmodulation of Cell Responses in Epithelial Cells	\$146578
Total # of Projects for PNNL:	144	Total Cost for PNNL: \$18292894

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PTX - Pantex Plant

Project ID	Project Name	FY Total
PX01001	Proximity Tracking Capability	\$1
PX01009	Circuitry Analysis to Produce Work Area Voltage Profiles Generated by Lightning Flashes	\$29000
PX01015	Explosive Synthesis & Formulation Process Optimization by Computer Modeling	\$91509
PX02003	Establish a Computational Capability at Pantex for Modeling Organic Compounds for Stockpile High Explosives and Design Agency Research Explosives	\$12614
PX02011	3D Acoustical Resonance System	\$36241
PX02015	Development and Implementation of an Enhanced Chemical Reactivity Test	\$40497
PX02016	Application of Chemical Force Microscopy to Determine the Strength of Bonds between High Explosives and Binders	\$93424
PX02020	Non Contact Measurement and Infrared Temperature Imaging of Explosives	\$55578
PX03001	High-Precision Non-Contact White Light Digitizing Sensor	\$387583
PX03002	Enhanced Analysis Capability Supporting Accelerated Aging Studies	\$127557
PX03004	Formation and Detection of Pores in Polymeric Materials	\$230069
PX03005	Establishment of a High Explosive Explosives Powder Pattern Library	\$65073
PX03006	GMR Eddy Current System	\$74897
PX03008	Neutron Non-Destructive Imaging of Weapons Materials	\$298752
PX03009	Validating Ultra Sonic Output for Positional Accuracy	\$203398
PX04002	Pit Measurement System for Vertical Arrays	\$21421
PX04003	Characterization of Corrosion Mechanisms	\$163053
PX04004	Real-Time Gas Analysis of Weapon Component Internal Atmospheres	\$85305
PX04005	Advanced Radiation Alarm Monitoring System (ARAMS)	\$113533
PX04008	Pilot Plant Solids Addition Capability	\$13061
PX04010	Particle Size Control in Explosive Precipitation Processes	\$28131
PX04012	Fiber Optic Probe Development for Laser Spectroscopy	\$33804
PX04013	Characterization of Explosives in Solvents	\$46804
PX04015	Pilot LABSOSC System Evaluation & Application for Specific Gamma Spectrometry	\$87382
Total # of Projects for PTX:	24	Total Cost for PTX: \$2338687*

*Does not include \$98,124 of administrative and related implementation costs.

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SNL - Sandia National Lab

Project ID	Project Name	FY Total
38605	Microfabrication with Femtosecond Laser Processing	\$347433
38606	Meso-scale Controlled Motion for a Microfluidic Drop Ejector	\$334982
38609	Physical and Electronic Changes caused by Membrane Signaling as a Transduction Pathway in Affinity Based Biosensors	\$301384
38610	Graduated Embodiment for Sophisticated Agent Evolution and Optimization	\$330436
38613	Scalable Fault Tolerant Algorithms for Linear-Scaling Coupled-Cluster Electronic Structure Methods	\$245288
38614	Micromagnetic Suspension	\$161625
38615	Sensitivities for Large-scale Simulation Codes	\$226345
38616	Engineered Superconductivity in Electron-hole Bilayers	\$281823
38617	Silicon-based RF MEMS Components	\$306159
38619	Nano-electromechanical Oscillators (NEMOs) for RF Filtering	\$298606
38620	Continous Wave Intersubband Terahertz Sources	\$387265
38621	Microsystems for Chemical Signature and Reagent Delivery	\$303231
38622	Microfluidic Cellular Sample Pretreatment	\$269885
38623	Automated Visual Direction of Mobile Manipulation	\$288205
38624	Miniature Fourier Transform Ion Mobility Spectrometer for Real Time Detection and Identification of Explosives and Chemical Agents	\$254209
38627	EM Interactions with Systems to Enhance Security	\$206908
38629	Use of Seismic and Acoustic Responses to Assess Bomb Damage to Underground Facilities	\$196772
38655	Free-Space Electro-Optic Sampling and Remote Mapping of Electromagnetic Fields from Emitting Structures Using Femtosecond Terahertz Transceivers	\$246238
38662	Natural Gas Production Problems: Solutions, Methodologies, and Modeling	\$289423
38665	Time Domain Reflectometry for Remote, Real-Time Water Quantity/Quality Monitoring of Perennial and Ephemeral Streams	\$192395
38668	Functionalized Nanoelectrode Arrays for In-situ Identification and Quantification of Regulated Chemicals in Water	\$250363
38673	Water Desalination	\$314480
38674	Revolutionary Systems for Catalytic Combustion and Diesel Catalytic Particulate Traps	\$373890
38677	Potential Application of Microsensor Technology in Radioactive Waste Management - With Emphasis on Headspace Gas Detection	\$242360

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SNL - Sandia National Lab

Project ID	Project Name	FY Total
38681	Identification of Chemical Plumes: Range-Resolved IR Lidar Enabled by New Photonic Technologies	\$539653
38684	A Robust, Coupled Approach for Atomistic-Continuum Simulation1	\$351037
38685	Microscale Rarefied Gas Dynamics and Surface Interactions for EUVL and MEMS Applications	\$281127
38686	High Fidelity Frictional Models for MEMs	\$395397
38687	Soot Formation, Transport, and Radiation in Unsteady Diffusion Flames	\$277899
38688	The Basics of Aqueous Nanofluidics: "Interphase" Structure and Surface Forces	\$292608
38689	Design, Synthesis, and Characterization of Soft Matter Nanolayer Superlattices	\$330170
38690	Photo-control of Nano-interactions in Microsystems	\$278592
38691	Electrochemically Deposited Alloys With Tailored Nanostructures for LIGA Micromachines	\$345299
38692	Nanostructured Materials for Directed Transport of Excitation Energy	\$194505
38693	Modeling Local Chemistry in the Presence of Collective Phenomena	\$174081
38717	Nano-Scale Energetic Materials By Inverse Micellar Synthesis	\$301749
38718	Modeling of Rock Penetration	\$218596
38722	Agile, Microsystems-Enabled Receiver	\$491890
39017	Solution-Based Nanoengineering of Materials	\$343887
39670	Simulations of Intense Petawatt Laser Pulses with Dense Z-Pinch Plasmas	\$305153
41193	Bio MicroFuelCell	\$2938785
41194	Augmented Cognition: Next-Generation Intelligent Systems	\$3816426
41674	MicroEngine for Advanced Power Generation	\$398229
41726	Direct Simulation of Solid-Fluid Systems	\$40000
42461	Support-Active Site Interactions in Heterogeneous Catalysts	\$102886
42483	An Analysis of the Automotive Industry as a Source for Weapon Components and Manufacturing Processes	\$172288
46070	High Speed Micro-EDM	\$40000
46686	Micro External Combustion Engine: The P3 Engine Prototype	\$20000
47795	Lipid Membranes on Nanostructured Silicon	\$68268
49769	Resin Infusion between Double Flexible Tooling	\$20916

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SNL - Sandia National Lab

Project ID	Project Name	FY Total
49772	Studies on the Disbonding Initiation of Interfacial Cracks	\$20000
49915	Critical Technology Development for Hard Target Defeat High-G Tolerant Fuze and High Explosives	\$752386
50065	TALON	\$3943937
50396	Compliant Membranes for MEMS Microphones	\$25000
50717	Multi Scale Experimental/Numerical Study	\$50000
50772	Cellular Observatory: Simultaneous Time- and Frequency-Resolved Microscopy	\$289806
52523	Atomic Layer Deposition of Highly Conformal Tribological Coatings	\$401207
52524	Assembly of Microsystems using Exothermic Multilayer Thin Films	\$341653
52526	Intelligent Interaction Control as Applied to Metrology and Assembly of Micro-Scale Components	\$353783
52527	Rapid Prototyping High-Density Circuitry (RpHdc)	\$339181
52528	Elucidating the Mysteries of Wetting	\$452097
52530	Next Generation Spindles for Micromilling	\$99174
52531	Assembly and Actuation of Nanomaterials Using Active Biomolecules	\$510980
52532	Modeling Biomembranes	\$337463
52533	Reverse Engineering Biological Networks: Applications in Immune Responses to Bio-Terrorism Threats	\$382977
52536	High Throughput Identification of Molecular Machines Involved in Membrane Signaling and Toxin Pathways	\$328937
52537	Coupled Solid-fluid-mechanical Computational Modeling of Fracture and Fragmentation in Geomaterials, Such as Hard and Deeply Buried Targets (HDBT)	\$349942
52538	Sequestration of Pathogens on Nanoengineered Surfaces	\$558421
52539	A Combined Preconcentrator and Sensor for Live Water-borne Pathogens	\$309465
52540	IP Storage: A Performance and Security Study	\$208835
52541	A Parallel Circuit Simulator for Cell Biology	\$238222
52542	Developing a Computationally Efficient Dynamic Multilevel Hybrid Optimization Scheme using Multifidelity Model Interactions	\$253376
52543	Robust Large-Scale Parallel Nonlinear Solvers for Simulations	\$202976

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Project ID	Project Name	FY Total
52544	Development of Computational Algorithms and Inversion Capabilities for Transport/reaction Simulations of Chemical/biological/radiological Terrorist Attack Scenarios in Support of Homeland Security	\$746138
52546	Massively-Parallel Linear Programming	\$210411
52548	Active Photonic-Crystal Devices for Integrated Photonics and Silicon photonics	\$361568
52549	Co-processing of Chalcogenide-Based Radiation-Hard Nonvolatile Memories by Sandia's MDL and BAE Systems.	\$328476
52551	Functionalized Nanoparticles for Sensor Applications	\$432475
52552	Novel In Situ Mechanical Testers to Enable Integrated Metal Surface Micro-machines	\$401774
52553	Compliant Thermo-Mechanical MEMS Actuators	\$259951
52554	An Integrated, Stacked System-on-a-chip	\$399385
52555	Micro Mass Spectrometer on a Chip	\$310922
52556	Quantum Coherence in Semiconductor Nanostructures for Improved Lasers and Detectors	\$357285
52557	MOSFET-MEMS Integration	\$352361
52566	Micro Optical Gyroscope Via Monolithic Active/Passive Optical Integration	\$374396
52570	Materials Physics and Device Development for Improved Efficiency of GaN HEMT High Power Amplifiers	\$390179
52571	Leaky-mode VCSELs for Photonic Logic Circuits	\$366574
52575	Advanced Polychromator Systems for Remote Chemical Sensing	\$336249
52577	Immunological Basis for High Reliability Systems Control	\$221127
52580	Moving Target Identification Using Ultra High Range Resolution Data	\$261025
52581	Advanced Mobile Networking, Sensing, and Controls using Graph Theory	\$345793
52582	Compact TeraHertz (THz) Sources for Emerging Threats applications	\$322443
52583	Understanding Communication in Counterterrorism Crisis Management	\$330354
52584	Hyper-Velocity Impact Generated Flash	\$269116
52585	Improving Human/System Interactions in Systems-of-Systems	\$500052
52586	Distributed Detection & ID Algorithm Architecture for Unattended Ground Sensors	\$234591
52587	Secure Chaotic Communications	\$280430

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Project ID	Project Name	FY Total
52588	System of Systems Modeling and Analysis	\$499664
52589	Eye Safe Short Range Standoff Aerosol Cloud Finder	\$140838
52590	Micro Flame-Based Detector Suite for Universal Gas Sensing	\$321596
52591	Beyond Nanoparticles - Attack on a Chemical "Holy Grail"	\$251360
52592	Advanced Proton-Exchange Materials for Energy Efficient Fuel Cells	\$387060
52593	Alanate-Hydride Fuel Cell Demonstration Project	\$359915
52595	Real-time Discriminatory Sensors for Water Contamination Events	\$324393
52596	Advanced High Efficiency Direct Cycle Gas Power Conversion Systems for Small Special Purpose Nuclear Power Reactors	\$370320
52597	Securing Mobile Code	\$302290
52598	Novel Catalysts For Hydrogen Fuel Cell Applications	\$299822
52606	Linking Optimization and Simulation in Critical Infrastructure Systems	\$372659
52698	Decomposition of Contaminants Using Photochemically Active Nanoparticles	\$437110
52699	Thermally Cleavable Surfactants	\$301919
52700	Transition-metal Catalyzation of Complex-hydride Absorption/desorption Reactions	\$201623
52701	Quantification of Environments and Surfaces within Micro-Packages	\$370623
52702	Assembly of Ordered Electro-Optical and Bioactive Materials and Composites	\$399276
52703	Advanced Packaging / Joining Technology for Microsystems	\$344278
52705	Magnetostrictive Elastomers for Actuators and Sensors	\$150445
52706	Development of a High-Throughput Microfluidic Integrated Microrray for the Detection of Chimeric Bioweapons.	\$193045
52708	Zero-Power Radio Receiver	\$249411
52709	Completely Passive Microwave Tag	\$218329
52710	Security Coatings for Multichip Modules	\$305937
52711	Detailed Modeling and Simulation of Contaminant Transport in Architectural Spaces	\$360793
52712	Content-Based Video and Image Indexing System	\$172361
52713	Bioaerosol Collection & Concentration for Microseparations-based Detectors	\$474951
52714	Detecting The Toolmarks Of Genetic Engineering In Bioweapons Strains	\$255800
52716	Joint Authentication/Encryption	\$196477

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Project ID	Project Name	FY Total
52717	Ultra High Temperature Ceramics for Hypersonic Vehicle Applications	\$256891
52718	Leveraging Robotic Planning for Physical Security Analysis	\$227442
52720	Ultra-Lightweight Telescope with MEMS Adaptive Optic for Distortion Correction	\$446742
52721	Modeling Signals from Earth Penetrating Nuclear Weapons for Remote Kill Assessment	\$329209
52723	Novel Micro-Preconcentrators For CW, Explosives And Water Surety	\$250379
52724	Ion Mobility Spectrometer-Mass Spectrometer	\$305924
52725	Cryptographic Assurance of Execution Correctness and Confidentiality	\$201771
52726	Characterization, Performance and Optimization of PVDF as a Piezo-electric Film for Advanced Space Mirror Concepts	\$307148
52727	Predictive Accelerated Aging of Microsystems: The Science of Dormancy	\$597601
52728	Surety and Accountability Enhancements for Storage Containers	\$289926
52729	Nuclear Safety Weaklinks for Thermal and Mechanical Environments	\$441433
52730	Advanced Packaging Technology for Optical Firesets	\$293651
52731	Miniature Transmitter Filter for JTA Using LIGA Technology	\$254005
52732	Novel and Robust Environmental Sensing Devices (ESDs)	\$497058
52733	Advanced Neutron Monitors for JTA and Stockpile Monitoring	\$320508
52737	Development of an Efficient Large-Aperture High Damage-Threshold Sol-gel Diffraction Grating	\$197378
52738	Laser Triggering of Water Switches in Terrawatt class Pulse Power Accelerators	\$194959
52739	Experimental and Computational Study of Liquid-Solid Transition in Tin	\$96601
52977	Flow Control and Mixing in Microfluidic Devices	\$20000
53464	Atomic-scale Scanning Tunneling Microscopy Measurements of Nucleation and Growth of Ge/Si Alloy Structures	\$20000
53465	Micro/Nanoscale Thermomechanical Manufacturing	\$20000
53585	Novel Diagnostics for Rarefied Flows in MEMs Applications	\$228327
53586	Geophysical Subsurface Imaging and Interface Identification	\$251001
53587	Evolution of Near Surface Scalar Concentrations Through a Compact Cylinder Array Embedded in the Atmospheric Surface Layer	\$25000
53588	Miniature High-Power RF Components Enabled by Meso-scale Manufacturing	\$110176

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Project ID	Project Name	FY Total
53590	Electrical Conductivity of Metal Alloys	\$173984
53591	Hydrogen Futures Dynamic Simulation Model	\$200007
53681	Design of Bio Specific Surfaces to Control Specific Cellular Responses	\$20000
54211	Nanomagnetic Films	\$20000
54213	A Multi-scale Approach to Modeling Carbon Nanotube Reinforced Composites	\$20000
55079	Near Real Time Characterization for Assured HDBT Defeat	\$2666485
55086	Prompt Global Response	\$2405321
55087	Winning the War: A Systems Approach to Defending Our Borders	\$1697561
57300	Integrated Superhard and Metallic Coatings for MEMS	\$51621
57307	Microscale Separations of Biological Compounds Using Novel Polymeric Separations Materials	\$50118
57308	Friction in Micromachine Interfaces	\$32404
57309	Lipid Microarray Biosensor for Biotoxin Detection	\$40000
57310	Advanced Manufacturing Techniques Using Rapid Prototyping	\$50674
57311	Robust Hermetic Packaging Techniques for MEMS Integrated Microsystems	\$40000
58907	Active Photonic Nanostructures	\$526640
59034	3-D Large Eddy Simulation of Turbulent Flow based on One-Dimensional Turbulence Modeling	\$80234
59916	A Method of Evaluating Research Using New Innovation, Risk, and Impact Indicators	\$287383
61046	Photonic Encryption using All-Optical Logic	\$80346
62269	Nanoporous-Carbon Adsorbers for Chemical Microsensors	\$121208
62827	Non-Lethal Technologies for the War on Terrorism	\$395413
64811	Agent-Based Control of Distributed Infrastructure Resources	\$331404
65559	Direct Single Ion Machining of Nanopores	\$61782
66170	Investigation of the Effects of Intense Pulsed Particle Beams on the Durability of Metal-to-Plastic Interfaces	\$38678
66450	Advanced Techniques for Multi-Objective Discrete Optimization	\$20000
66809	Non-radioactive Safety & Performance Issues with Supercritical Water Reactor Safety (SCWR) Technologies	\$25000

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Project ID	Project Name	FY Total
66810	Radiation Performance Issues with Advanced Coolants for Next Generation Reactor	\$25000
67004	Rapid Prototyping to the Nanometer Scale	\$294525
67005	Robust Manufacturing of Gel-based Components for Nuclear Weapons	\$93194
67006	Meso-/Micro-Optical System Interface Coupling Solutions	\$277340
67007	Injection Molding of Net-Shape Active Ceramic Components	\$318437
67008	Macro-Meso-Microsystems Integration in LTCC	\$351980
67010	Studies of Signaling Domains in Model and Biological Membranes Through Advanced Imaging Techniques	\$343958
67011	Imaging Self-Organization of Proteins in Membranes by Photocatalytic Nano-Tagging	\$294291
67012	Protein Microarrays for Biowarfare Agent Detection and Characterization	\$336385
67013	Interaction of Proteins with Lipid Films	\$271149
67014	New Technologies for Understanding Membrane Protein Recognition and Signaling	\$85088
67015	Massively Parallel Scalable Atmosphere Model	\$200021
67016	High Performance Processing Architecture	\$161879
67017	Substructured Multibody Molecular Dynamics	\$258826
67018	Enhancing Simulation Performance on Clusters with Configurable Auxiliary Devices	\$174480
67019	A Hybrid level-set/particle Method for Modeling Surface Evolution During Feature Scale Etching and Deposition Processes	\$135264
67020	Penetrator Reliability Investigation and Design Exploration (PRIDE)	\$449256
67021	Topology Optimization for Improving Sensor Performance	\$235371
67022	Characterization and Application of Dielectrics with Controlled Leakage	\$321809
67023	Nano-g Accelerometers Using Nanophotonic Motion Detection System	\$498746
67024	Bragg Fiber Development	\$295945
67025	Microwave to Millimeter-wave Electrodynamical Response and RF Applications of Semiconductor Quantum Nanostructures	\$350365
67026	Development of GaN 20-100 Watt Ku-Band Power Amplifiers for Micro-SAR	\$299965
67027	Evanescent Wave Planar Photonic Biosensor	\$302737

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Project ID	Project Name	FY Total
67028	Passive Electronically Steerable Array (PESA) for Miniature Synthetic Aperture Radar (miniSAR), Precision Guidance, and Intelligence/Surveillance/Reconnaissance (ISR)	\$300519
67029	Advancements in Sensing and Perception using Structured Lighting Techniques and an Innovative Design Tool	\$226400
67030	Biophysics of BW-Warhead Defeat with a Kinetic Interceptor	\$247361
67031	Dispersal in Urban Canyons, Source Identification, and Collateral Damage/Mitigation Assessment	\$20252
67032	Weaponization of Thermobaric Explosives	\$244775
67033	Development of an Enterprise-Scale Agent-Based Autonomic Logistics Simulation Model	\$249736
67034	Mobile Node Authentication in a Wireless Ad hoc Environment	\$212288
67035	Novel Processing, Affordable Motion Compensation, and Mode Multiplexing for Miniaturized Synthetic Aperture Radar	\$431871
67036	Coilgun Technology Demonstration Testbed	\$307760
67037	Enhanced Perception for Remote 3D Mapping of Unknown Indoor and Outdoor Environments	\$340146
67038	A Modular Micromagnetic Accelerometer-in Support of the mTalon Vision	\$272113
67039	MICROFUZE Integration	\$488997
67040	Realistic Crowd Behavior Models Using Individual Cognitive Agents	\$268
67041	Analysis of Technology Impacts on Operations in Complex Environments	\$443267
67042	CBW Cloud Knockdown and Neutralization	\$216217
67043	Assessment of Bio-Killers in EDS for Biological Agent Destruction	\$55568
67044	Adaptive Force Feedback Surface Control	\$247784
67046	High-Capacity Earth Penetrator Instrumentation	\$314585
67047	Systems Analysis of Networked Sensors	\$288674
67048	Deployable Object Tracker for NMD Flights	\$146160
67049	Continuous-Flow Detector for Rapid Pathogen Identification	\$205028
67050	Biological-Security Decontamination Technology -- Reducing the Threat of Infectious Agent Spread	\$100849
67051	Consequence Management, Recovery, and Restoration after an Intentional Contamination Event	\$100211
67052	Fully Integrated System Dynamics Toolbox for Water Resources Planning	\$277603

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Project ID	Project Name	FY Total
67053	Predicting System Performance of Proton-Exchange-Membrane Fuel Cells: Computational Modeling with Experimental Discovery and Validation	\$323106
67054	Optimal Allocation of Terrorist Countermeasures Using Risk-based Systems Pathways Analysis	\$278354
67055	Silicon Field Emission Electric Propulsion Arrays (FEEP) Powered by Orbital Nuclear Reactors	\$350861
67056	Advanced Fuel-cell Reactor for the Direct Cogeneration of Electricity During Selective Partial Oxidation of Hydrocarbons	\$368327
67057	New Hydrogen Storage Material: Metal-N-H system	\$102269
67058	Intrusion Detection for Wireless Networks	\$304745
67059	Membranes for H2 Generation from Nuclear Powered Thermochemical Cycles	\$254826
67060	Microfabricated BTU Monitoring Device for System-Wide Natural Gas Monitoring	\$99838
67061	"Tunable" Ion Conductors for Low Temperature Oxide-based Fuel Cells	\$218148
67062	Nuclear Nano-Batteries: on-board power for independent MEMS devices	\$54320
67063	Integrated Tunable Light Sources for Miniature Sensors	\$99558
67064	Ray Model of High Frequency Cavity Scarring	\$127739
67065	New Smart Material to Address Issues of Structural Health Monitoring	\$83903
67067	Noncontact Surface Thermometry for Microsystems	\$272181
67068	High Speed Interferometric Deformation Measurements	\$270460
67069	Fundamentals of Nanofluidics	\$281475
67070	Simulating Self-assembly and Growth of Biological Nanostructured Materials	\$230008
67071	A Low-Power Ultra-Fast Current Transient Measuring Device	\$89602
67073	A Capillary Valve for Microfluidic Systems	\$92195
67074	Electrochemically Switchable Materials for (Bio)Microfluidics	\$206649
67075	Modeling of Friction-Induced Deformation and Microstructure	\$501771
67076	Reversible Antibody Trapping for Selective Sensor Devices	\$196803
67077	Correlated and Comprehensive Analytical Techniques for Homeland Defense	\$511758
67078	Development of High Energy Density Dielectric Materials for Integrated Microsystems	\$299975
67079	Nanolithography Directed Materials Growth and Self-Assembly	\$392928

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Project ID	Project Name	FY Total
67080	Development of a Novel Technique to Assess the Vulnerability of Micro-Mechanical System Components to Environmentally Assisted Cracking	\$183339
67081	3D Optical Sectioning with a New Hyperspectral Deconvolution Fluorescence Imaging System	\$539426
67082	The Science of Solutes: Transition Metals in LIGA Nickel	\$286932
67083	Novel Gel-Based Technology for Sensors and Weapons	\$100002
67084	Coupled Nanomechanical Oscillator Arrays for the Study of Internal Dissipation in Nano-scale Structures and Collective Behavior in Large Systems	\$312608
67085	Precisely Controlled Picoliter Vessels with Rapid Sample Preparation for Trace Biotxin Detection	\$225039
67086	Adaptive Optics and Phase Diversity Imaging for Responsive Space Applications	\$244693
67087	Infrastructural Development for Flexible Network of Devices	\$516720
67088	Monolithic Reconfigurable Radio-Frequency Microelectromechanical System (RF MEMS) Antennas	\$334504
67089	Next-Generation 3D Inspection System for Facility Monitoring	\$258215
67090	Risk Assessment Meta Tool	\$150053
67091	Featureless Spread-Spectrum Waveform Design and Processing	\$216526
67092	Tracking Slow-Moving Objects in a GPS-Denied Environment	\$328904
67093	Optical Communications	\$179677
67094	A Unique Vibration-Based Miniature Power Generator for National Security Applications	\$230762
67095	Image Georectification Using Digital Elevation Model Shadows	\$195801
67096	Vulnerability Assessment of State-of-the-art Microelectronics	\$217364
67098	Nonlinear Optical Detection of Biological and Chemical Aerosol Agents Using Femtosecond Lasers	\$355448
67099	Polymer Electronic Devices and Materials	\$488703
67101	Small Circuits for Cryptography	\$99216
67102	Analysis of Multichannel Internet Communication	\$89145
67104	Receiver for Ultra-Low Power Wake-up and Command	\$184412
67105	Extraordinary Optical Transmission through Patterned Subwavelength Apertures	\$137572

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Project ID	Project Name	FY Total
67107	Reconstruction Algorithm Development and Assessment for a Computed Tomography Based-spectral Imager	\$335275
67108	Power Combining Techniques for Solid State Power Amplifiers (SSPAs)	\$354754
67109	Dispersive Diffractive Optical Elements for the Infrared	\$506930
67111	Atmospheric Propagation of THz Radiation	\$114626
67112	Thermophotovoltaic Power Sources	\$69386
67113	High-Confidence Estimation of Relative Event Locations from Space-Based Sensors	\$158608
67114	Critical Infrastructure System of Systems Assessment Methodology	\$465632
67115	Dynamic Vulnerability Assessment	\$127441
67116	Inflatable Antenna with Adaptive Actuators	\$261595
67117	Data Driven Dynamic Models of Conflict	\$100743
67118	MEMS / Fuze Diagnostic Extraction in High-G Environments	\$172791
67120	Efficient Implicit Multigroup Radiation Calculations	\$142372
67121	Model for Channel Resistance in Water Breakdown	\$69491
67122	Embeddable Shock Physics Sensors	\$170680
67716	Smart Detectors of Enrichment of Bio-Aerosols	\$20000
68063	Computational Studies of JP-8 Diffusion Flames with Detailed Chemistry and Particulate Formation	\$20000
69143	Design and Fabrication of Advanced Device Structures for Ultra High Efficiency Solid State Lighting	\$477774
69145	Molecular Simulation of Beta-amyloid (A-beta) Peptide Interaction with Phospholipid Membranes.	\$49999
69146	Nanoscale Testing of Deformation and Fracture in Engineering Materials	\$50663
69148	Nanocrystal-Polymer Composites for High Luminous Efficiency LEDs	\$401819
69149	Outstanding Challenges for AlGaInN MOCVD	\$407568
69150	Nanoporous Polymeric Materials for Chemically and Spatially Multiplexed Sensing of Bioagents	\$96365
69151	Evolutionary Complexity for Protection of Critical Assets	\$90695
69152	Nanomechanical Stochastic Resonators	\$75979
69153	Augmented Musculature Device	\$101229
69154	Biomolecular Decision-making Processes for Self-assembly	\$360904

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Project ID	Project Name	FY Total
69155	Light-Powered Nanovehicle Propulsion	\$100679
69156	System Dynamics Modeling to Assist Regional Water Planning: Modeling the Non-Market Value of Water	\$25000
69157	Interactive Water Quality Modeling to Assist Regional Water Planning	\$25000
69158	Microbe-Exuded Polymers and the Enhanced Corrosion of Carbonate Materials	\$50000
69159	Nerve Cell Function and the Development of Cognitive Networks	\$74106
69160	Ultrahigh Gain Fusion Concept	\$80385
69161	Nanofluidic Devices for Rapid Detection of Virus Particles	\$128627
69162	Solution Behavior of PEO: the Ultimate Biocompatible Polymer	\$102424
69163	New Self-assembled Nanocrystal Micelles for Biolabels	\$99918
69164	Rapid Detecton of Biothreat Agents Based on Cellular Machinery	\$102046
69165	Patterning Quantum Dot Arrays using DNA Replication Principles	\$104093
69166	Adaptive Algorithms for Use in the Rejection of Periodic Disturbances of Unknown Frequency	\$25000
69168	Property-based Testing for Cyber Security Assurance	\$50000
69170	Self-Assembled Ordered Carbon-Nanotube Arrays and Membranes	\$100455
69189	Chemical Crosslinking and Mass Spectrometry Studies of the Structure and Dynamics of Membrane Proteins and Receptors	\$703291
69190	Toxin Studies Using an Integrated Biophysical and Structural Biology Approach	\$325511
69191	Top-Down Structural Studies	\$238444
69192	Molecular Dynamics of Membrane Proteins	\$123104
69193	Model-Building Codes for Membrane Proteins	\$183057
69198	Poroelastic Wave Propagation on the Earth Simulator	\$172725
69239	Development of Micro Reformers for Fuel Cells	\$59278
70799	Developing the Foundation for Polyoxo-niobate Chemistry: Highly Tunable and Exploitable Materials	\$209804
71943	Simulating Human Behavior for National Security	\$415464
71944	Agent-based Modeling of Middle East Terrorist Recruitment	\$100523
71945	Automatic Generation of Terrorist Operation Plan Hypotheses	\$389500

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Project ID	Project Name	FY Total
72599	Develop a System Dynamics Modeling Framework for Assessing Factors that Influence Water Resource Consumption	\$166613
72600	Develop a Cooperative Water Management Process, Creating a System Dynamics Model of Water Resources in the Lower Rio Grande Basin	\$171791
72715	Compact Ultrabright Multikilovolt X-Ray Sources for Advanced Material Studies, 3D Nanoimaging, and Attosecond X-Ray Technology	\$516146
72716	Energy Systems Analysis Framework and Modeling	\$526207
73045	Radiation/Geometry-Driven Jets: Proof-of-Principle Tests	\$76733
73185	Superhydrophobic Surface Coatings for Microfluidics and MEMS	\$444100
73207	Micro Optical Radar (MOR) Facial Recognition Project	\$825306
73362	The Neuroscience of Group Collaboration	\$2427
74545	Determining Explosive Ignition Criteria for Miniaturized Devices	\$100767
74546	Quantum Squeezed Light for Probing Mitochondrial Membranes and Study of Neuroprotectants	\$194955
74547	Characterization of a New Class of Surface Micromachined Pumps	\$25469
74548	Risk of Biological Terrorism to Water Distribution Systems	\$107843
74759	Explicit and Implicit Measures in Human Aversive Classical Conditioning	\$50000
74760	Automatic Target Recognition Algorithms for Uncooled Thermal Imagery	\$199144
74795	Magnetophoretic Bead Trapping in a High Flowrate Biological Detection System	\$79999
75441	TPV Energy Scavenging for Hypervelocity Vehicles	\$68405
75442	Assessment of Advanced Pulsed Power Fusion Concepts	\$256092
75443	A Mathematical Method for Quantifying the Effectiveness of Management Strategies	\$87634
75513	Developing Algorithms for Predicting Protein-protein Interactions from Experimental Constraints	\$71441
75514	Instrumentation Development for Real Time Brain Wave Monitoring	\$81209
75786	Maximally Autonomous Autodirective Antenna Array Technology	\$25000
76069	Miniaturized Electronic Steerable Array Synthetic Aperture Radar	\$836994
76070	Full-Earth Monitoring Sensor MESAWorks	\$796550
76305	Systems Assessment of Water Savings Impact of Controlled Environment Agriculture Utilizing Wirelessly Networked SDACs	\$161437

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Project ID	Project Name	FY Total
76306	Inactivation of Avian Influenza (Bird Flu) with Sandia Developed Decontamination Formulations	\$100368
78132	Deciphering the Genetic Regulatory Code Using an Inverse Error Control Coding Framework	\$72777
78307	Climate Change Effects on International Stability	\$120613
78783	Generalized Continuum Models for Inelasticity in Solids: Formulation of Theories, and Variational Methods for Computation	\$50000
79943	GeSi Strained Nanostructure Self-assembly for Nano- and Opto-electronics	\$11959
80835	Vulnerability Analysis for SCADA	\$113624
80838	Molten Salt-Based Growth of Bulk GaN and InN	\$59899
81209	Randomness Complexity and Cryptography	\$60000
81354	System Study: Adaptive Optics for Weapon, Reconnaissance and Military Space Applications	\$27142
Total # of Projects for SNL:	354	Total Cost for SNL: \$102095427 *

*Does not include \$1,900,573 of administrative and related implementation costs.

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SRP - Savannah River Plant

Project ID	Project Name	FY Total
SR02015	Alanates as a New High Capacity H2/T2 Storage Material	\$15137
SR02016	Catalyzed Metallic Glass for H2 Separation	\$17906
SR02023	Hydrogen Isotope Permeation Testing	\$42957
SR02031	Large-scale Fabrication Process for Hydride/Sol-Gel Composites	\$40165
SR02033	Laser Cladding for Tritium Permeation Barrier Coatings	\$23625
SR02042	Thermal Absorption Diffusion Isotope Separation Process	\$124672
SR03001	Plasma Arc Process to Decontaminate Palladium for Recycle	\$67034
SR03002	Discover New Hydride Metal-alloys Using the "Materials as Systems" & "Combinatorial Library Synthesis" Methodologies	\$101328
SR03004	Modeling of Pressure Swing Adsorption Processes For Hydrogen Separations	\$10239
SR03005	Fill Stem Decontamination Using Plasma and/or Atomic Oxygen	\$75194
SR03006	Heat Transfer and Modeling of Next Generation Metal Hydride Beds	\$142470
SR03008	Catalyzed Alkali Metal Borohydrides for Tritium and Hydrogen Storage	\$149637
SR03014	Glass Microsphere Encapsulation of Hydrogen Absorbents	\$83498
SR03029	Evaluation of Alternate Stainless Steel Surface Coatings and Methods for Passivation	\$45922
SR03030	Evaluation of Non-Reactive, Permeation Resistant Materials for Tritium/Hydrogen Storage & Processing	\$50385
SR03036	Tritium Reservoir Performance Prediction and Analysis Tools	\$118790
SR03037	Pinch Weld Process Improvement Using Secondary Variable Analysis and Advanced Weld Controls	\$184969
SR03038	Development of Stainless Steel Alloys with an Innate/Self-Healing Permeation Barrier	\$149177
SR03046	Multiplexed Vapochromic Ammonia and Moisture Sensors for Tritium Process Monitoring	\$108129
SR03052	Universal Tritium Transmitters	\$159733
SR03053	Ion Chamber for Tritium Monitoring to Minimize High Backgrounds Due to Surface Area Contamination	\$30840
SR03054	Tritium Reservoir Surface Defect NDE Inspection Feasibility Study	\$34087
SR03060	Palladium on Ceramic as an Alternative to Palladium on Kieselguhr	\$72247
SR04001	Advanced Crystalline Nanoporous Materials for Tritium/Hydrogen Storage	\$105077

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SRP - Savannah River Plant

Project ID	Project Name	FY Total
SR04009	Detection and Measurement of He-3 Bubbles by Positron Annihilation Lifetime Spectroscopy	\$131987
SR04011	Develop Low Cost, High Sensitivity Optical Gas Sensors using Surface Enhanced Raman Spectroscopy	\$152137
SR04013	Feasibility Study of Pd Recovery from Pd/k using ARC melter	\$25008
SR04015	Improved material for methane cracking	\$128441
SR04025	Ultra-Fast Mass Analysis of Hydrogen Isotopes	\$90457
SR04030	Laser Ablation for Spatially-Resolved Solid Phase Tritium Assay (Scoping)	\$86758
SR04032	Carbon Nanotubes for Sensors	\$86791
Total # of Projects for SRP:	31	Total Cost for SRP: \$2654797

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Y_12 - Y-12 Plant

Project ID	Project Name	FY Total
Y1201006	Net Shape Forming (NSF)	\$17077
Y1201020	Rapid In-situ Identification of Fissile Material Type in Cans	\$75448
Y1201021	Direct Electrolytic Reduction of Uranium Oxides	\$30150
Y1201029	Real-Time Beryllium Oxide (BeO) Monitoring	\$520721
Y1201030	Advanced Thermal Cutting Processes for Disassembly	\$66207
Y1201033	Enhanced Absorption of Microwave Energy	\$72697
Y1201039	Real-Time Monitor For Measuring Beryllium In Air	\$49543
Y1201043	High-density, Noncontact Inspection of Work Pieces	\$58097
Y1201053	Advanced Technology Assessment Team	\$75337
Y1202005	Hand-Held Enrichment Meter	\$34054
Y1202007	Alternative Fluorinating Agents to Produce UF4	\$28855
Y1202009	Real Time Identification of Airborne Particles (Be, U, etc.)	\$33883
Y1202014	Advanced Melting Process Using High Flux Density Infrared (IR)	\$462495
Y1202015	Infrared (IR) Heating for Preheating Uranium Billets	\$131776
Y1202036	Chromatographic Separation	\$30882
Y1202039	Equal Channel Angular Processing	\$75233
Y1202040	Improved Material Properties Through Application of GBE	\$42888
Y1202052	Advanced Analysis Engine	\$154014
Y1202053	High Resolution Imaging System for Digital Radiography	\$188991
Y1202096	Zone Refining	\$174531
Y1202097	Alt. Uranium Casting	\$12909
Y1202099	Predictive Performance Indicators	\$38501
Y1202101	Tool Tuning	\$85574
Y1202102	Fisk Rad Detectors	\$26119
Y1202103	Fuzzy Logic Analysis of Measurement	\$33519
Y1202105	UNCC Hole Plate	\$46789
Y1202106	UFL HSM	\$89057
Y1202107	NCSU Artifact	\$108904
Y1203001	Radiograph Archival	\$42304

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Y_12 - Y-12 Plant

Project ID	Project Name	FY Total
Y1203006	Enhanced Chip Casting	\$17866
Y1203010	U-C Properties	\$192405
Y1203014	High Accuracy, High Density	\$156958
Y1203016	Salt Certification Substitution	\$109273
Y1203020	Holo Interferometry	\$119441
Y1203021	Micro CT	\$74018
Y1203023	SFM Process Monitoring	\$80627
Y1203032	High Speed Machining	\$137413
Y1203039	Advanced SDOR	\$104040
Y1203043	ID of Ultra Fine Particles	\$86387
Y1203050	Lugless Casting	\$73274
Y1203051	Multizone Furnace	\$104455
Y1203059	High Gradient Magnetic Filtration	\$305135
Y1203065	Digital DU	\$158945
Y1203073	LiH Assessment	\$188558
Y1203074	IWMS	\$2116100
Y1203075	Project 2	\$97938
Y1203076	Tech Infusion	\$116953
Y1204006	Cone Beam X-ray CAT scan	\$189748
Y1204008	Mold Material	\$24939
Y1204013	Be Swipe Colorimetric Screening	\$29523
Y1204015	Chemistry Control Using Slow Solidification	\$14786
Y1204019	Surface Metrology	\$42529
Y1204036	Wireless Predictive Maintenance	\$95974
Y1204037	Process Radiation Detector System	\$71646
Y1204040	U Compatibility with Crucible Materials	\$290926
Y1204041	Slag Reprocessing	\$60205
Y1204045	Next Generation MW	\$66485
Y1204059	NMC&A Confirmatory Cart	\$88224

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Y_12 - Y-12 Plant

Project ID	Project Name	FY Total
Y1204062	Synergistic Casting Methodology	\$44183
Y1204087	Direct Conversion to Oxide	\$41945
Y1204102	Kathabar Alternatives	\$27892
Y1204103	Precision Electroplating	\$75299
Y1204110	Crucible Materials Thermo Modeling	\$25958
Y1204118	Wireless Systems Security Assessment	\$10429
Y1204126	Engineered Security Concepts	\$88198
Y1204127	Integrated Machining & Inspection at GT	\$47427
Y1204128	Source Model	\$36103
Y1204129	Wall Enhancements	\$6582
Y1204132	Selected Material Sanitization	\$32404
Y1204133	EMBOS	\$625449
Y1204134	Tusk Fracture Toughness with SSM	\$21867
Y1204135	UM - Optimet	\$501
Y1204136	Portable Metal Analyzer	\$4161
Y1204137	UNCC Improving Machine Tool Productivity and Quality	\$30283
Y1204138	Machining Uranium and Uranium Alloys	\$317
Y1204139	Unique Mass Spectrometry Capabilities	\$4824
Y1204140	Nanostructured Material Machine Tools	\$107458
Y1204141	Ultrasonic Vibration of Molten Metals	\$22238
Total # of Projects for Y_12:	78	Total Cost for Y_12: \$9274844 *

*Does not include \$592,313 of administrative and related implementation costs.